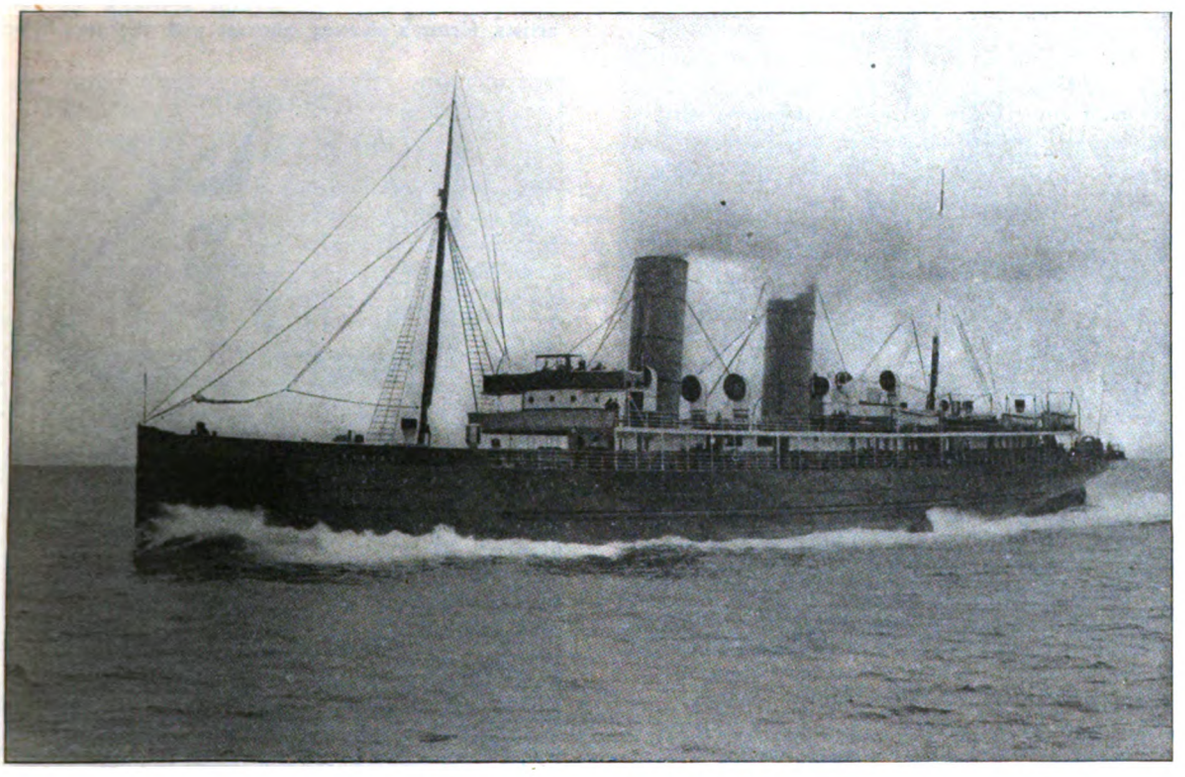
MARINE REVIEW

VOL. XXXII. CLEVELAND, AUGUST 31, 1905. No. 9.

TURBINE STEAMER VIKING

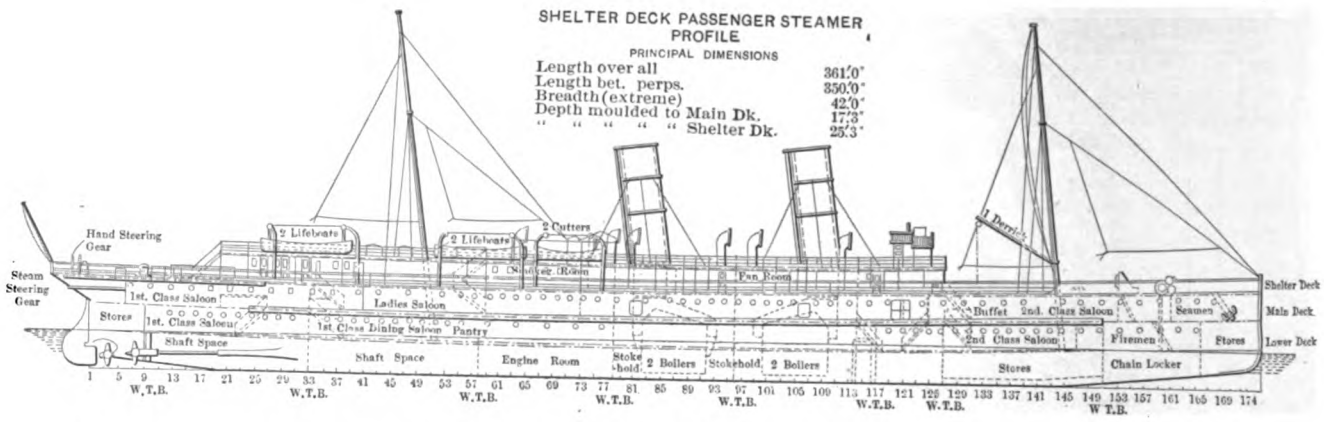
Engineering of London recently published an account of the trials of the turbine steamer Viking, saying that in no steamship service have so many encouragements towards advancement been offered to the naval architect as has been the case with the enormous flotilla of passenger steamers trading around the British coast. At the beginning of the nineteenth century this trade was the first on which the steam engine was tried, and through a long course of practical application the engine was brought to a state of relative perfection before being tried in over-sea vessels. Now in the twentieth century one finds history repeating itself, the Parsons steam turbine taking the place of the reciprocating engine; and now one more service is added to the many in which the new system of propulsion is being adopted. This vessel is also the first channel steamer to trade from Liverpool with turbine machinery, and is bound, from this fact alone, to be popular. The Viking has been built for the Isle of Man Steam Packet Co., of Douglas, by Sir W. G. Armstrong, Whitworth & Co., at their Low Walker yard, and is the first of the steamers for this service built on the northeast coast. It is at least significant that the technical officers responsible for the building of the Viking have had a previous long association with the construction of vessels for the Isle of Man Steam Packet Co. at other ports—namely, Mr. R. Saxton White, the general manager of the Low Walker yard, and Mr. Andrew Laing, the general manager of the Wallsend Slipway & Engineering Co., who supplied all the steam generation plant.



THE VIKING ON HER TRIAL TRIP.

The dimensions are: Length over all, 361 ft.; length be-

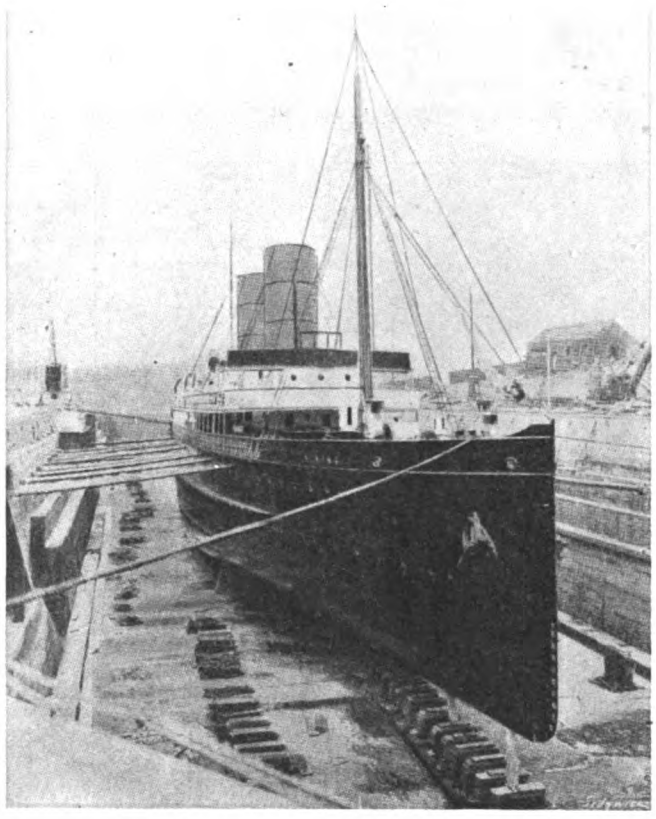
Generated on 2024-08-27 20:21 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY



SECTIONAL VIEW OF TURBINE STEAMER VIKING.

tween perpendiculars, 350 ft.; breadth, 42 ft.; depth to upper deck, 17 ft. 3 in.

The subdivision of the vessel into water-tight compartments has received special attention, and the principle has been carried so far that the ship will float with any two

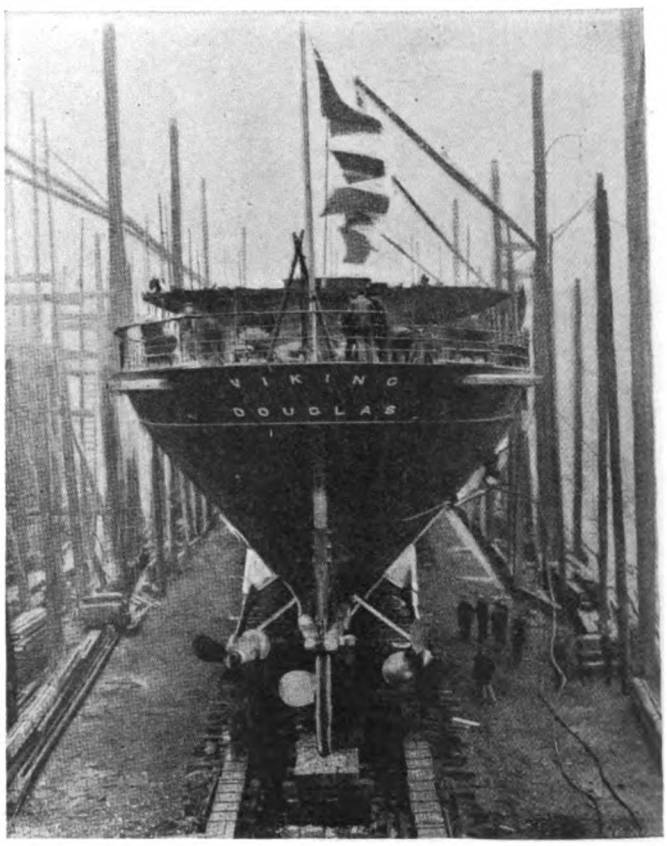


BOW VIEW OF THE VIKING.

compartments full of water. The vessel has been built to Lloyd's requirements, and to conform with all the rules of the Board of Trade for a passenger certificate. She should be able to perform the crossing in three hours, and therefore it may be found possible for her to make two double trips every day in daylight. To meet the special requirements of this trade, she is designed to carry a very large number of passengers—nearly 2,000—and to afford them ample accommodation in the way of promenade space, together with extensive facilities for refreshment in the shape of numerous dining saloons and bars. Her shelter-deck extends uninterruptedly from stem to stern, a length of 361 ft., and above it is a big promenade deck, about two-thirds this length, which is carried out to the ship's sides, and is thus 42 ft. wide at its broadest point. The first-class accommodation is aft and the second-class forward, the middle part of the ship being mainly occupied by the boilers and engine room. The main, upper, and shelter-decks are continuous, except in way of the engine and boiler rooms.

Abaft the main entrance hall on the shelter deck there are four private cabins and a tea-room, close to which there are two of the companion ladders leading to the promenade deck above.

The main saloon is the full width of the vessel, and is lighted by skylight and large rectangular windows at the sides. The woodwork is in dark oak, and a series of black and white reproductions of famous pictures, by well-known artists, forms a pleasing contrast with the dark tones of the



STERN VIEW OF THE VIKING.

somewhat severe paneling, which is also broken by the deep-set window openings, and relieved by a simple carved design. The entrance hall is paneled in oak, of the same tone as the main saloon, combined with blue and white Dutch tiles.

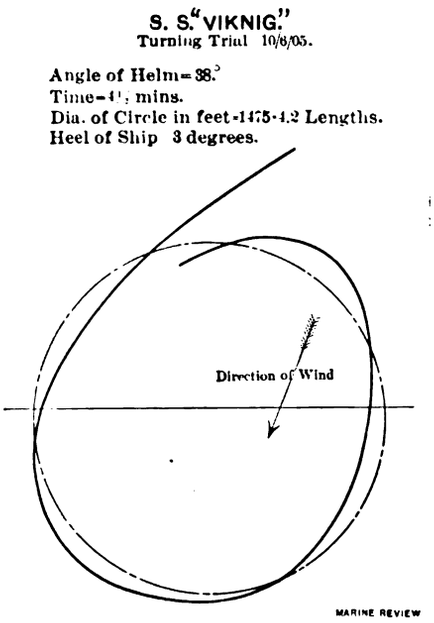
The ladies' room is entered through folding doors on the

Generated on 2024-08-27 20:11 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

port side of the main saloon. It is paneled in sycamore in simple style, and is lighted by large windows in the ship's side, and by the large light and air-trunk, which leads to the dining saloon on the deck below. A large lavatory opens off the ladies' room.

At the after end of the main saloon a stairway leads down into another saloon, where accommodation is provided for those who wish to lie down.

The dining saloon is entered by means of a stairway alongside the main entrance to the saloon. It provides seating accommodation for about 100 people, and is decorated with



TURNING DIAGRAM OF THE VIKING.

oak paneling. The usual pantry arrangements, with hot plates, lift to the galley, etc., are provided, and all the accessories required to make the service in this department as expeditious as possible. The first-class smoking room is on the shelter deck, and is entered by doors placed just forward of the stairway from the shelter to the upper deck.

The second-class accommodation is at the forward end of the vessel, and consists of two large general saloons, one of which is arranged for dining, and a ladies' saloon. Lavatory accommodation is provided in convenient places throughout the vessel.

The propelling machinery consists of three sets of turbines manufactured by the Parsons Marine Steam Turbine Co.

The high-pressure turbine is in the center, with a low-pressure turbine on each side. The surface-condensers are in the wings at the after end of the engine room, with the centrifugal circulating pumps close alongside them. Two large independent air pumps, of Messrs. Weir's make, are fitted conveniently near the condenser, and discharge into a large feed tank, whence the feed-water is led to the automatic float control tank, and so to the two feed pumps, which are also of Messrs. Weir's make. These pumps discharge to the boilers direct, or through an exhaust feed-heater on Parsons' patent, which gave very satisfactory results on the trials. The Parsons' patent vacuum augmenter is fitted in connection with the main condenser, enabling a high vacuum to be maintained. The lubrication of the bearings is effected by means of an oil circulating pump, which drives the oil under considerable pressure through all the bearings, and into a cooling and filtering apparatus on its way back to the pump. The stern-way turbines are arranged as usual within the low-pressure casings, and revolve idly *in vacuo* while the vessel is steaming ahead. The three shafts are of Armstrong-Whitworth Openshaw steel, and the propellers of a special bronze mixture worked up to a highly-polished surface.

Steam of 160 lb. pressure is supplied by four double-ended boilers, 15 ft. in diameter and 19 ft. 6 in. long, placed in two boiler rooms separated by a water-tight bulkhead. The stokeholds are arranged for forced draught, and the air is supplied by four fans placed in a separate compartment on the shelter deck, and communicating with the stokeholds by means of straight air-trunks. An emergency exit from each boiler room is arranged through the air-lock into the fan-room. The funnels are fitted with outer casings which are utilized as upcast ventilators, and for this purpose are connected to compartments in various parts of the ship. A spark-arrester, Messrs. Denny & Brace's patent, is fitted in each funnel. The result of its trial was most satisfactory, as there was no sign of sparks or cinders when running at the maximum speed. The whole of the stokehold and boiler-feeding arrangements were carried out by the Wallsend Slipway & Engineering Co.

Two sets of trials were carried out, irrespective of the builder's preliminary test. The first official trial took place over the measured mile off the mouth of the Tyne, under somewhat unfavorable weather conditions. There was a fresh northeasterly breeze, and from 2 ft. to 3 ft. of sea. The air-pressure in the stokeholds did not exceed ¾ in. water column, and no attempt was made to dvelop the maximum power of the boilers. On June 14 the vessel was taken to sea for an extended trial. A course was set from Souter Point to Flamborough Head, 68.277 nautical miles, and the distance was traversed in both directions, care being taken to eliminate, as far as possible, the effect of the tide. The southward run was made at a speed of 23.684 knots, and the northward at 23.375 knots, or a mean speed over the whole distince of 23.53 knots. The vessel was kept at full speed for nearly seven hours. Although the power developed on this trial was higher than on the preliminary trials, there was very considerable reserve in the boilers.

The maneuvering qualities of the ship are very favorable, one of the accompanying diagrams showing the turning circle of the vessel at 20 knots' speed. The observations were taken during a strong breeze; and, as the time was short, only one circle was made, with the results given on the diagram.

AN IMPORTANT DECISION

News of a very important decision to the shipping world has just been received at Victoria, B. C., from London. This is the reserved judgment of the privy council, in the final appeal of the Canadian Pacific Railway Co. against the award of damages to the imperial government of China, in consequence of the sinking of the third-class cruiser Kwangtai, in collision with the Empress of Japan, has been delivered, the appeal being dismissed, and the judgment of the admiralty court at Shanghai fully confirmed.

Under this judgment the Canadian Pacific Railway Co. is required to pay a sum aggregating only about $60,000 less than half a million for the destruction of the Chinese war craft and the death of ten of her crew. To this will be added costs of perhaps $100,000 more, making a total of $540,000. The judgment is even more important, however, to shipping men the world over, since it affirms the principle on which the Shanghai court reached its conclusion as to the responsibility. The warship was ahead of the Empress, both holding the same course, and the following vessel, it is held, is bound always to anticipate the movements of the other. The Empress' officers ascribed the disaster to a freakish shifting of the course by the Kwang-tai.

Generated on 2024-08-27 20:39 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

LIVERPOOL SHIPPING LETTER

Liverpool, July 31:—The movement in favor of Great Britain taking part in the diplomatic conference which on the invitation of the Belgian government will consider in September next, at Brussels, the draft treaties on collisions and salvage at sea, is taking the proportions of a universal manifestation of opinion of the commercial community in the United Kingdom, the following associations have now passed a resolution asking the government to be represented at the Diplomatic Conference; The Liverpool Chamber of Commerce, the Liverpool Corn Trade Association, the Liverpool Shipowners' Association, the Liverpool Provision Trade Association, the Glasgow Chamber of Commerce, the Clyde Steamship Owners' Association, the Blackburn Chamber of Commerce, the Bury Chamber of Commerce, the London Corn Trade Association, the Nottingham Chamber of Commerce, the Cardiff Incorporated Shipowners' Association, and the Cardiff Chamber of Commerce, the Newcastle & Gateshead Chamber of Commerce. It would be difficult to overstate the importance of this expression of opinion. It is apparent that not only shipowners and underwriters, but also merchants are realizing that it would be unwise for Great Britain not to take the lead in an international movement of this sort, especially when other countries recognizing Britain's supremacy are insisting that Brtain shall be a party to any arrangement, as a condition of their own adhesion. The movement is not only important in itself, but it also shows that commercial men are awakening to the growing importance of international arrangements and international good will amongst the nations for the sake of the prosperity of commerce.

The official confirmation is just made that an amalgamation has just been arranged between the London & India Docks Co., and the Millwall Docks Co. The relative importance of the two undertakings may be gauged from their relative capitals. The London & India Docks has a nominal capital of eleven million pounds sterling, with some eight millions of debentures, whilst the Millwall company is content with a total capital of about two million pounds. There can be no doubt that such a combine will be useful to both concerns in economizing administration expenses, as well as in enabling a better distribution of tonnage and traffic. The amalgamation has been arranged on the following terms: The Millwall dock debenture holders receive three percent debenture stock of the London company to an amount which will yield them the same income as they now receive; holders of five percent first preference stock of the Millwall company receive £108 of four percent preferred ordinary stock of the London company for each £100 of Millwall stock; holders of four and a half percent preference stock of the Millwall company to receive £06 of four percent preferred ordinary stock of the London company for each £100 of Millwall stock; holders of the new five percent preference stock of the Millwall company to receive £50 of four percent preferred ordinary stock of the London company for each £100 of Millwall stock; and the ordinary stockholders of the Millwall company to receive £45 10s. of deferred ordinary stock of the London company in exchange for £100 of Millwall stock.

Capt. Henry Wilson Hewitt, the highly esteemed marine superintendent of the White Star Line, has just died very suddenly at his residence here. By general consent a more capable, kind-hearted and popular man was not to be found in Liverpool shipping circles. Deceased was 74 years of age and prior to his retirement from sea at a comparatively early age to assume the important position of marine superintendent to the White Star line in 1872, to which he was appointed by the late Mr. Thomas Henry Ismay, who always entertained a warm personal regard for him. I have heard it said that the late Captain Hewitt was in his early days associated with the late Mr. T. H. Ismay in the ownership of a brig and in the west coast trade Captain Hewitt navigated the craft, and Mr. Ismay attended to the necessary business ashore. Was this the modest beginning of the now mighty White Star line?

COAL AND ORE TRAFFIC ON THE LAKES

Buffalo, Aug. 29.—The "lay-up scare" of the lake vessels has not amounted to much and it is really not much of a scare to the veteran vessel owner, for he knows that the rapid changes in most sorts of business are often less than a season long and will affect the fleet in more than one direction almost every season. Estimates are on that account so very far out of the actual that the figures are often made ridiculous before the end of the season. There was a decidedly bad spot in the iron trade during the middle of last season and the estimates of ore to be brought down were at one time about down to 16,000,000 tons, but when the season was well under way in the last half the iron boom began to develop and the fleet was busy, not stopping till it had carried a matter of 23,000,000 tons.

And so the owner who has about all his money tied up in what he calls "modern" lake vessels says that of course there will be times when the average lake vessel will not be able to get a cargo and she will have to wait for it. With the fleet that is to be put afloat next season this is sure to happen and let the iron demand drop off at all sharply and the ore will pile up at the lower-lake docks so that there will be little for the fleet to do but wait for a dock to be cleared out a little by the railroad. It will happen again, too, that the season with more or less of waiting will be a good money maker, so it is not really wise to complain of the run of things till the season is over.

One thing seems to be pretty well changed for the better and it is believed permanently. That is, the old waiting for business on account of money that is not to be had or that is of uncertain value. We are on a more above-board financial plane than we have been before, as it is found that money can be raised if there is work for it to do or to stand for, and besides it is good money. Nobody is likely to be afraid of it any more. That sort of foolishness is over. We have gone through it well and thoroughly and the lesson of it is well learned. A dollar is a dollar and if it had been in the days of 1893, when the business went to pieces for financial reasons only, the industrial conditions would never have created any disturbance. Two sorts of dollars make it impossible to discover which way you are steering, so the safe thing to do is to tie up awhile.

We have found out that there is a quicker limit to vessels of a certain large size than there is to those much smaller. It is noted that the big steamers Jupiter, Lake Shore and Walker are still tied up here, while the Maytham and some others of about half their size, which were also ordered in ordinary, are off again. The hard coal trade favors the smaller craft as yet, for the docks are not adapted to handling the larger ones as they should be and the roads find it a task to get coal enough ready to load them. If the coal traffic through the lakes should increase after awhile as ore has done the large carrier would be as much in the lead in that trade as it is in ore, but somehow such is not yet the case. Hard coal is about stationary as to the quantity handled by lake and the distribution of it this season is not promising any great growth of it right away.

It is noted that the overflow tonnage that used to be turned in at Toledo from here is still smaller than it was last season, and the change may indicate that the limit of the lake traffic in hard coal has about been reached. One thing is certain. The hard coal is so entirely in the possession of the railroads that they would carry it all themselves if

Generated on 2024-08-27 20:53 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

they were able, but it is found that so many upper lake points could never be supplied all-rail that it has been found profitable to maintain a thorough equipment here and ship by water to some points that could be covered by rail direct.

So it looks as though the hard-coal trade is not going to need the big lake steamers badly enough to make it worth the while to adapt docks and other needed appliances to them. There is a great amount of new work going up here this season, looking towards a larger and more economic handling of hard coal, but it looks towards the rail traffic more than anything else, unless it may be said to squint towards the stocking problem pure and simple, as a safeguard against the attitude of the miners. If the coal-stocking plants now building and contemplated here had been in full operation when the big anthracite strike was on three seasons ago the lake trade in that commodity need not have stood still all summer.

Buffalo is proud of what she has done in the hard coal trade by lake. Freights are low in it now and the big steamers are bound to keep it low, whether they carry much of it or not, but there is still good business in it and there have been more than one season when it kept the fleet from loss.

JOHN CHAMBERLIN.

AT THE HEAD OF THE LAKES

Duluth, Aug. 26.—Nothing has occurred the past week to change the probabilities of an immense grain crop in the Northwest, and nothing but excessive wet weather during later harvest and threshing can stop the bountiful yield. Some crop experts say the yield of wheat is low, and figure about 100,000,000 bushels for the three Northwestern States, but these estimates are universally disregarded, and grain men who have made inspection of the situation agree on a far greater crop. There is now less wheat in store at the head of the lakes than on any period of the crop, about 75,000 bushels, all special bin at Duluth-Superior. The shipments of wheat have been good the past week, as have those of flax, which latter is reduced about 500,000 bushels for the week. New barley is coming in at Duluth in considerable quantity, but new wheat has not begun to arrive in large enough quantity to mention.

The Minnesota inspection bureau has decided to establish grain inspection, for the product of the Great Northern lines, at the interior points of Cass lake and Sandstone, on account of the new Wisconsin inspection law, which makes it a misdemeanor for a Minnesota inspector to enter a car of grain in the State of Wisconsin. All grain from the Northern Pacific road is inspected at Duluth. There is no effort made to stop the inspection of grain at Wisconsin points, if the owner and shipper so desire, but there is no elevator in which to put grain so inspected, and nobody to buy the grain, if it could be stored.

The old tug Mentor, at Houghton, has been bought by A. Green, of Hancock, and is to be rebuilt and will be used, with a wrecking scow, for wrecking purposes. This will be the first outfit of the sort in Portage lake. The Mentor was for many years owned by the Calumet & Hecla Co.

A year ago the United States engineer office at Duluth sold the steam yacht Pickett for about $600. The boat was taken to Port Arthur, where she is in use as a fishing tug, and is giving great satisfaction. The buyer examined the boilers, engines and hull and found them all in good shape, and has a bargain that is worth thousands of dollars. The long overhang of the boat has been removed changing her appearance materially.

Large sales of lumber for immediate shipment have been made at Duluth by interior mills, and from now to the close of the season the volume of lumber to be shipped to this city and moved via lake east from mills at Cloquet and surrounding points will be enormous. The shipments of mills located at Duluth also will be very large, and the probability is that the head of the lakes will go into the winter with less lumber on hand, sold or unsold, than for many years. The demand is tremendous, indeed, far above the capacity of mills, and the price is constantly hardening. A new and great factor in the lumber trade of Duluth is the Rainey Lake Co., which will cut next year not far from 300,000,000 ft., and has enough timber on hand to make as great a cut annually for the next five or six years. It has leased, with option to buy, the Lesure mill at Duluth. An associated interest has contracted for 6,000,000 ft., with option for 20,000,000 ft. more, with the St. Louis Lumber Co., and the Rainey Lake Co. is to build a mill capable of cutting 100,000,000 ft. more. It has recently bought the Virginia Lumber Co.'s mill, which is good for 90,000,000 ft. a year.

FRENCH SHIP SUBSIDIES AID FRENCH COMMERCE

Editor Marine Review:—In response to enquiries from correspondents in the United States concerning the advantages possessed by European merchants over American merchants engaged in the foreign trade, especially in regard to the subsidies and bounties paid by the French government to its merchant marine, United States Consul-General Skinner of Marseilles, France, reports the following facts:

French ship subsidies cover not only the building but also the operation of French ships engaged in foreign trade. In many cases these subsidies have created the lines to which they are paid. Practically every vessel flying the French flag receives or has received bounty from the government.

French ship subsidies have increased the percentage of the world's commerce carried under the French flag, because to earn the subsidy the ships must remain in commission and find freight. The amounts paid to highly subsidized lines, particularly those running to the Orient, bear but little relation to the mail service rendered.

On June 30, 1903, the French merchant marine consisted of 690 steamers of 559,000 tons net, and 601 sailing vessels of 415,000 tons net. During 1903 this fleet was increased by 83,000 gross tons. Since 1894 the annual ship subsidies paid to French mail steamers have averaged $5,000,000. Nearly $2,000,000 yearly average is paid toward the building of new ships.

American ships cost more than those built abroad, because American shipowners require an allround finish which foreign owners do not consider necessary.

American sailors, serving American ships, require American wages. These wages are approximately twice those paid to British sailors, and very much more greater than those paid to the still cheaper sailors of other European maritime nations.

The supremacy of the British mercantile marine is not unchallenged. British shipowners are confronting much the same problem as American shipowners. It costs more money to operate British ships with British sailors than it does to operate German, Italian, Spanish, Danish, or Japanese ships.

To get sailors for its merchant marine, France pays small pensions to French sailors after protracted service. This gives the government a reserve to draw from in case of war needs. France really has a naval militia.

In its latest annual report the Marseilles Chamber of Commerce says: "The development of the United States merchant marine is inevitable and near. We persist in believing, as we did one year ago, that the future conqueror of the sea will raise the Starry Flag." It rests with Congress to verify that prophecy.

WALTER J. BALLARD.

Schenectady, N. Y.

Generated on 2024-08-27 20:08 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

DEVOTED TO EVERYTHING AND EVERY INTEREST CONNECTED OR ASSOCIATED WITH MARINE MATTERS ON THE FACE OF THE EARTH.

Published every Thursday by

The Penton Publishing Company

CLEVELAND.

CHICAGO: MONADNOCK BUILDING.
PITTSBURG: PARK BUILDING.
NEW YORK: 150 NASSAU STREET.

Correspondence on Marine Engineering, Shipbuilding and Shipping Subjects Solicited.

Subscription, $3.00 per annum. To Foreign Countries, $4.50. Subscribers can have addresses changed at will.

Change of advertisting copy must reach this office on Thursday preceding date of publication.

The Cleveland News Co. will supply the trade with the MARINE REVIEW through the regular channels of the American News Co.

European Agents, The International News Company, Breams Building, Chancery Lane, London, E. C. England.

Entered at the Post Office at Cleveland, Ohio, as Second Class Matter.

AUGUST 31, 1905.

Too much stress has been placed upon the assertion that lake shipyards have all the work they can handle for 1906 delivery and that every available berth has been taken and is now under contract for the construction of a new ship for the lake trade. While it is true more and larger boats are now under contract or in course of construction than at any other time in the history of the business, that the shipyards for the time being are crowded and are pressed for delivery, this condition with the marvelous rapidity with which boats can be turned out on the lakes is but temporary. It must be taken into consideration that although they have a tremendous amount of work on hand their capacity is proportionate and in talking about building space there is always room for another.

Owners having new boats built are eager to have them completed and into commission in order to give them an earning capacity. Intimation of a slack season inaugurates a policy of stringent retrenchment while on the other hand indications of a boom season fills the shipyards with new tonnage. The past two seasons have been good and the prospects for a continuation are bright and the result has been reflected in the shipyards. The shipyards are lake trade barometers. Contracts have been signed in profusion and the realization that the economical carrier is the larger one provided the necessary alliances ensuring cargoes and dispatch can be made, has this year and last produced the carriers of the type of steamers ordered by the Pittsburg Steamship Co. in the Elbert H. Gary, Wm. E. Corey, George W. Perkins and H. C. Frick.

In the case of ships as in matters of policy it is a question of follow the leader. The initiative of any large interest in ordering a new type of construction is followed by others who want the same thing. An order for a boat from one source is generally followed up with others from other sources, and these have followed each other in such rapid succession for the past two years that they are responsible for the congestion in the shippards.

The delay in delivery of new tonnage which has been laid at the doors of the shipbuilding companies of the lakes is due to the owners of the new boats more than to the builders. Where as much capital is necessary as in the construction and operation of a shipyard, the promoters endeavor to take care of business in ordinary times and provide for a natural increase, but they cannot be expected to meet the demands of boom times without ample time for preparation. In no industry in the world are more staple results accomplished than in the lake shipyards. The highest degree of skill combined with a maximum output of product has been accomplished and it is possible to turn out a completed ship in three months.

It is marvelous when it is considered the resources called into play and the enterprises involved. The putting together of a ship does not reflect the labor or material which has been involved in its inception. The ore miner of Lake Superior district, the railroads transporting it to the harbors, the vessels carrying it to lower lake ports, its handling and transportation to the furnaces, smelting to pig iron, refining into steel, rolling and cutting, the making of shapes and plates and angles and then its transportation to the lake shipyards are all essential features befort a ship is started. The making of plans and drawings, with the attendant requirements of skill and knowledge must all have been completed before a keel is laid or a rivet driven.

All these are things which cannot be driven and cannot be hurried and how little does the ship owner think of these before his boat is ordered and he begins to urge immediate delivery. These details have been figured out to a nicety by those whose business it is to build ships, but material used in ship construction is but a small part of work turned out by the mills and it must take its turn with other structural material.

When a hull is built the boat is only two-thirds completed. Its engines, boilers and equipment which

Generated on 2024-08-27 20:40 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

make its operation possible are still to be added and these details cannot be crowded. They all have a place and must be in that place in their regular order of being. Fanciful as these thoughts may sound they are as true as truth itself and cannot be controverted. When it is stated that the shipyards of the lakes are full it means that an enormous amount of work has been done and that more is to be done. With the growth of the commerce of the lakes the shipyards have grown, enlarged and expanded and new yards have been established and are ready for anything that may come. They will never have more work than they can handle, it will simply be a matter of time in which the work can be accomplished. Despite the announcement in the daily press that no more new work can be undertaken, announcemet of new contracts may be expected for next year's delivery at almost any time.

The fact of the whole matter is that the lake shipyards have foreseen the present tendency to build and have for a long time been urging prospective owners to place their contracts in order to avoid the delay which is now upon them. Mistaking the urging for a natural desire for business, instead of a word of caution to get in early and avoid the rush, places the prospective owner of new lake ships in a position where he must now wait his turn in the long line at the ticket window instead of having had the forthought to make his reservation in advance.

FREIGHT SITUATION

Upper lake docks are now in excellent shape and vessels in the ore trade are obtaining good dispatch. The movement, however, is well within the capacity of contract tonnage to handle and the demand for wild boats is consequently light. There is no reason to believe that less than 31,000,000 tons of ore will be moved during the present year. The greater proportion of it is continuing to go into cars and notwithstanding the heavy movement the Erie docks will be in good shape at the close of navigation.

The movement of grain from Chicago is very satisfactory, but rates have ruled without any material change owing to ample offerings of vessels. Grain shippers at the head of the lakes are maneuvering for vessels at lake loading, but the rate for this service has not yet been fixed.

CHICAGO GRAIN REPORT

Chicago, Aug. 29.—The movement of last week notes a satisfactory showing in point of quantity, but current vessel offerings are so fully in offset of the demand, rates ruled without any noteworthy change from previous report. Going charters are @ 1⅜ cent to 1¼ cent corn, dependent upon locality and time of loading with Montreal corn through routing, fairly steady @ 3¼ cents per bushel. Vessels for August loading in better request at the moment, due to advances of ½ cent in eastern rail rates, effective on shipments after Sept. 1. Line steamers are not in the grain handling to any extent, as reflected in last week's movement of some 197,000 barrels flour, their package freight demand is comparatively active. Summarily, the vessel capacity is distributed to better advantage, and there is every sign of ore and grain making for especially active offering.

Shipments of the week compiled by E. J. Fleming & Co., distributed as follows: Via all rail lines of flour, 77,000 bbls.; wheat, 127,076 bu.; corn, 157,032 bu., and oats, 745,214. To Buffalo and other American points of flour, 120,000 bbls.; wheat, 284,200 bu.; corn, 2,104,500 bu., and oats, 151,000 bu. And via lake to Canada, of wheat, 48,000 bu.; corn, 247,000 bu., and oats 649,000 bu.

Lake and Rail Shipments:

	This week.	Last week.	Same week last year.
Wheat	459,276	563,717	417,550
Corn	2,580,757	2,234,397	1,797,738
Oats	1,545,140	1,569,225	993,414
	4,585,173	4,367,339	3,208,702
Flour	197,329 (bbls.)	169,127	101,206

Lake and Rail Shipments:

	Since Jan. 1, 1905.	Same time last year.
Wheat	8,974,704	9,396,642
Corn	62,240,641	44,026,634
Oats	25,285,320	30,838,910
Rye	630,956	844,267
Barley	2,618,436	2,834,329
	99,750,057	87,940,736
Flour	3,866,096 (bbls)	5,064,642

Private and Public Elevator Stocks:

	This week.	Last week.	Same week last year.
Wheat	5,586,000	5,120,000	3,278,000
Corn	3,548,000	3,998,000	2,812,000
Oats	7,350,000	6,604,000	5,807,000
Rye	156,000	119,000	587,000
Barley	52,714	23,714	102,000
	16,692,714	15,864,714	12,676,000

GUNNELL MACHINE CO.

The Gunnell Tool Co., Manitowoc, Wis., has been reorganized. The name has been changed to the Gunnell Machine Co. and the capital stock increased from $5,000 to $35,000. Marine engines and propelling machinery, etc., will be added to the line of steel workers' tools and appliances formerly manufactured by this company. A site adjoining the Manitowoc Dry Dock Co. has been selected as the location for its plant, and grading and excavating have already been completed for the buildings. The first structure to be erected will be a machine shop 60 x 106 ft., which will be equipped with all modern machinery.

The officers of the company are Elias Gunnell, president; Chas. C. West, secretary; L. E. Geer, treasurer, and E. G. Todt, vice president and manager. Mr. Todt has had a long experience in the manufacture of marine machinery. He was nine years with the Chicago Ship Building Co., four of them spent as chief draftsman and five as superintendent of the engine department. Prior to that connection he was with the Cleveland Ship Building Co. as draftsman in the engine department. After serving his time as a machinist with the Detroit Dry Dock Co. Mr. Todt took a special course at the Cornell University in naval architecture and marine engineering, and is therefore well equipped for the position he now holds.

The Craig Ship Building Co., of Toledo, will lengthen the passenger steamer Lakeside 20 ft.

Generated on 2024-08-27 20:21 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

BUNKERING BRITISH SHIPS ON AN AMERICAN PLAN

Liverpool, Aug. 21.—Liverpool as a coaling depot is about to have its importance increased by an invention from the United States. This is a coal elevator which can put this commodity right into a steamer's bunkers at the rate of some 150 to 170 tons per hour. The inventor is Mr. Clark, an American gentleman, who was entrusted with the bunkering of the American vessels, by the aid of his patent machine during the Spanish-American war. The patent is known as Clark's automatic system of bunkering vessels, and the invention consists of a huge iron barge, the hold being divided into compartments in which an immense quantity of coal is carried. Each compartment has a false bottom, and in the center a sliding door worked by a lever. When one or more of these doors are opened the coal required falls into the movable buckets which run along under the false bottom, then up a perpendicular tower of great height, from the top of which the buckets discharge their contents through two massive tubes placed at such an angle that the coal can be easily shot into any desired spot. On reaching the top of the tower the coal is automatically weighed and registered. In each division of the hold the false bottom can be tipped, so that every pound of coal can be completely cleared through the opening into the buckets, each of which holds about 210 lbs., whilst the height of the towers will vary so that any kind of vessel can be bunkered. It is claimed for the invention that it can be easily worked by one or two men. Mr. Clark, who worked and explained his invention, stated that the work could be done just as well at night if necessary so as not to interfere with the handling of cargo. The trials which took place at the Birkenhead ship building yard of Messrs. Cammell, Laird & Co. were witnessed by a representative gathering of Liverpool shipowners, as well as others interested in the coal trade, who evidently appreciated the merits of this remarkable invention. While quite a new thing in British ports, the system appears to have been in use in American ports for some time, where quite a fleet of the elevators are said to be at present engaged in bunkering vessels. The elevators are naturally expensive to build, but the cost of working is reduced to a minimum, apart entirely from the great rapidity with which the steamers can be coaled and despatch given. The present machine is intended to work Liverpool, and from the favorable impression created among those who were privileged to see the working of the system, it is believed that it will afford a facility which will be a distinct advantage to the port.

The report of Vice Admiral Sir George Nares as to the state of navigation of the Mersey during last year contains much that is interesting and instructive. The fact that in the course of the twelve months 9,119,100 tons of material were dredged from the sea channels, bringing up the total quantity removed since operations were commenced in 1890 to 83,516,370 tons, shows what an immense amount of work has been done to ensure the safe navigation of the approaches to the river. Nevertheless, more still requires to be accomplished to secure a greater depth of water at the bar and in the main channel to prevent delay at dead low water of the great liners, and undoubtedly, this matter is receiving attention in view of the provision which is to be made for still greater craft by the new docks that are to be built. The number of vessels inward and outward bound which passed through the several sea channels during the year, exclusive of tenders, tugs, flats, fishing vessels and other small craft, was 51,177, or an average of 56.2 per day. This is a record, the next highest total being in 1902, when it was 55,194, with a daily average of 151.2. The ruling depth of the main channels is about 27 ft. at low water spring tides.

Another phase of the West Indian mail question is dealt with in a circular just issued by the British postmaster general. It is announced that in addition to the fortnightly mails made up for transmission by the Royal Mail Steam Packet Co.'s vessels, the fortnightly steamers of the direct line from London and Dartmouth will be used in the intervening weeks for the conveyance of mails to Antigua, Barbadoes, Demerara, Dominica, Grenada, Martinique, Montserrat, Nevis, St. Kitts, St. Eustatius, St. Martins, St. Lucia, St. Vincent and Trinidad. Parcels will be similarly conveyed to all the West Indian islands, with the exception of Martinique, St. Eustatius and St. Martins. Commencing on Sept. 1, supplementary mails for the West Indies will be made up at Southampton for despatch by the Royal Mail Steam Packet Co.'s vessels.

The figures as to the shipments of cotton from the West Indies to Britain during the first half of the present year are both interesting and instructive, as evidence of the success which has so far attended the British cotton growing movement in the West Indian colonies. A grand total of 3,056 bales were shipped, aggregating in value to about £35,621. The cotton was in ready demand and fetched a good average price on the market. Of the sea island class, over 208,000 lbs. came from Barbadoes, the estimated value being $52,000. That an excellent quality of cotton can be grown at a cheap rate in the West Indies has now been clearly proved. It is also worthy of note in this connection that the experiments in cotton growing in West Africa are very encouraging, each incoming vessel bringing a good number of bales of this season's growth. Many years must of course elapse ere British grown cotton can adequately supply the needs of the British cotton mills, but with every succeeding year now, the great textile industry of Lancashire will become less dependant upon the American raw material, and less at the mercy of speculators in both countries.

The select committee appointed to inquire into and report upon to what extent the statutory requirements applying to British ships trading to and from ports in the United Kingdom should be made applicable to foreign vessels trading to and from such ports, have issued a report in which they state that the statutory requirements to which special attention has been drawn are those for preventing overloading and seaworthiness, those relating to passenger and emigrant ships, the provisions as to proper stowage of grain cargoes and the rules as to life-saving appliances, the subjects of the limitation of the liability of ship owners and of inquiries. The committee recommend that power be given to the government to apply by order in council in the ports of the United Kingdom the British rules as to loadline to the merchant ships of any country which do not comply with rules as to loading which are substantially equivalent to those in force in Britain. The committee do not think that foreign vessels trading to British ports ought to be allowed to go to sea if they are so unsafe as to endanger life, and recommend that the provisions of the Merchant Shipping Act of 1894 on this point should in future be applied to foreign as well as British ships. The committee also recommend that foreign vessels which bring cargoes of grain to the United Kingdom should be required to adopt reasonable precautions, and should, so far as is practicable, be subjected to the provisions of the Merchant Shipping Act, which regulates the loading of grain on British ships, and also the provision of life-saving appliances.

There is a report current in Liverpool at the time of writing that the Canadian Pacific Railway Co., which have a line of steamers running between Liverpool and Canada, will tender for the Canadian mail contract next year. In Liverpool nothing appears to be known about the matter and it is not thought likely that the Canadian Pacific Railway Co. will make any tender for the contract until the new steamers

Generated on 2024-08-27 20:11 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

which they are now having built are ready for sailing. The Allan line at present have the mail contract.

The North German Lloyd Steamship Co. has decided to establish a new freight line of steamers for direct service between Bremen and Philadelphia, and thence to Savannah, the return journey being direct to Bremen. The new line, which will constitute a regular service, will be undertaken by steamers which have been purchased from the Argo Steamship Co. of Bremen. It is not proposed to carry passengers by the new line, which will be inaugurated early in September. In addition to this scheme, the North German Lloyd is having plans prepared for a new type of fast steamer of 580 ft. in length which is to be substituted for the Kaiser Wilhelm der Grosse. At present 80 per cent of the company's new vessels are built in Germany, whereas fourteen years ago, 74 per cent of the steamers were constructed in England.

The Basingstoke canal, 47 miles long and running through Aldershot and Waking to its junction with the River Wey, three miles from the Thames, has been bought as a private speculation by Mr. William Carter, a wealthy gentleman of Parkstone. Railway competition has caused the trade on the canal to dwindle to small proportions, and the company which previously owned it went into liquidation. The waterway was constructed at a cost of $845,000, and was opened in 1794. Much of the property is now in a dilapidated condition, and it is said that the sum for which it has been purchased is exceedingly small compared with the original outlay. It is now proposed to try to revive trade with a service of motor boats, and if this proves impracticable, a scheme will be considered to drain off the water and use the course as a trunk line for a light railway, with tramway extensions in the principal towns. A peculiar feature in the construction of the canal is that it passes through a tunnel three-quarters of a mile long under the Greywell Hills.

The following are the returns of the passenger traffic between Europe and New York and Liverpool and Boston, by the lines named for the first six months of this year as compared with the corresponding six months of last year:

TO NEW YORK.

	First.	Second.	Third.
White Star, this year.....	5,297	4,280	25,648
White Star, last year.....	4,317	3,943	18,288
Cunard, this year	2,186	3,788	17,906
Cunard, last year	1,958	4,239	14,003
Hamburg-American, this year..	2,169	4,066	60,387
Hamburg-American, last year...	2,841	5,432	51,055
North German Lloyd, this year.	4,455	8,395	54,564
North German Lloyd, last year.	4,207	7,330	31,720

EAST BOUND.

White Star, this year.....	6,925	4,183	9,100
White Star, last year.....	5,747	3,944	11,855
Cunard, this year	3,766	3,383	5,877
Cunard, last year	2,740	4,048	8,211
Hamburg-American, this year..	4,477	4,621	4,683
Hamburg-American, last year..	4,352	4,885	10,704
North German Lloyd, this year.	7,715	6,263	11,002
North German Lloyd, last year.	6,961	5,511	17,224

TO BOSTON.

White Star, this year.....	726	503	5,548
White Star, last year.....	572	851	4,624
Cunard, this year	692	1,530	14,065
Cunard, last year	502	1,356	11,758

FROM BOSTON.

White Star, this year.....	883	540	1,546
White Star, last year	825	640	1,700
Cunard Line, this year.....	790	1,088	2,988
Cunard Line, last year.....	753	906	3,417

The July returns of the Manchester Ship Canal again show a substantial increase of over fifteen thousand dollars. The figures are: July, 1905, $170,385; July, 1904, $155,220. Total for seven months, 1905, $1,213,155; 1904, $1,147,200, increase 1905, $65,955.

TURBINE BLADES

Many experiments have been made into the wear of the blades of steam turbines to determine the cause of this trouble and the latest to conduct an investigation are the firm of Sulzer Bros. It is undoubtedly a fact that the continued success of the turbine hinges largely upon this one point of blade wear. If the blades of a particular machine should have to be renewed frequently, because of deterioration and consequent loss in economy in the use of steam, that turbine would not make a commercial success. The Sulzer experiments indicate that the wear is due to the particles of water in the steam, and that if water is present in steam that flows at extremely high velocities, as is the case in single-stage turbines, the cutting is apt to be rapid. With superheated steam, or with saturated steam in multi-stage turbines, the cutting is not a serious matter.

The above experiments are in a measure confirmed, thinks an American contemporary, by the experience of those using steam injectors for boiler feeding. This cutting action seldom occurs in the steam nozzle, but frequently does take place in the combining tube where water is flowing at comparatively low velocities. It should be noted, however, that this water is mainly the feed water pumped up by the injector, and contains more or less mineral matter, the extent of the cutting probably depending upon the quality of such foreign particles entrained in the water. In the case of the turbine, however, the water particles suspended in the steam are or should be nothing but pure distilled water, formed by steam condensation after leaving the boiler. Probably no injector would give trouble by cutting, if used to pump distilled water, assuming, of course, that the tubes were of a material that would not be corroded by the water. It is thought that no turbine, in which the steam is used at moderate velocity, will be likely to deteriorate rapidly under ordinary operative conditions.

THAT PANAMA LUMBER CONTRACT

Editor *Marine Review*: Sir—In your issue under date of the 17th inst. you have an article purporting to be the facts in connection with a contract we made with the Panama Canal Commission for some 12,000,000 ft. of lumber, but this article is so at variance with the facts that we are inclined to believe that you have been misled by interested parties. The following are the actual facts:

We have chartered four steamers to move this freight, at a gross rate of $8.70 per M. ft. The California Shipowner's Association named a rate of $12 per M. ft. and would not consider anything less, notwithstanding the fact that they knew they were in competition with foreign tonnage. It is difficult to imagine what rate the California Shipowners' Association would have asked if they knew we were tied down to the American register in the moving of this contract. We are quite sure it would be far in excess of $12. Do you think that the canal commission would be justified in paying anywhere from 30 to 50 per cent more freight to an American vessel than what a foreign vessel could be secured at? Notwithstanding the fact that we own ships ourselves, which fly the American flag, we cannot bring ourselves to think this would be good business.

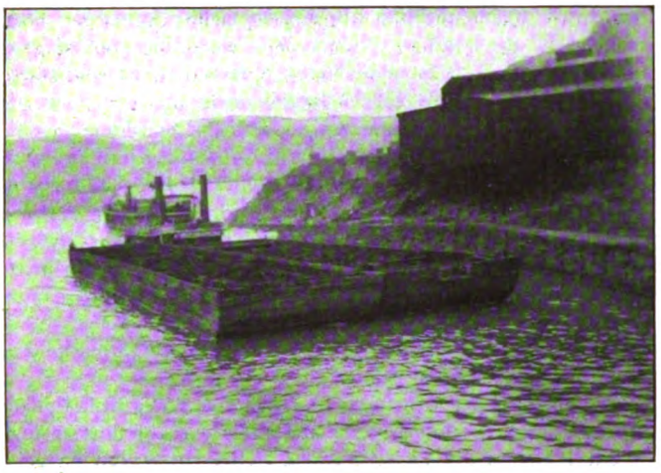
J. J. MOORE, President.

San Francisco, Aug. 24.

Generated on 2024-08-27 20:39 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

HANDLING COAL ON THE OHIO RIVER

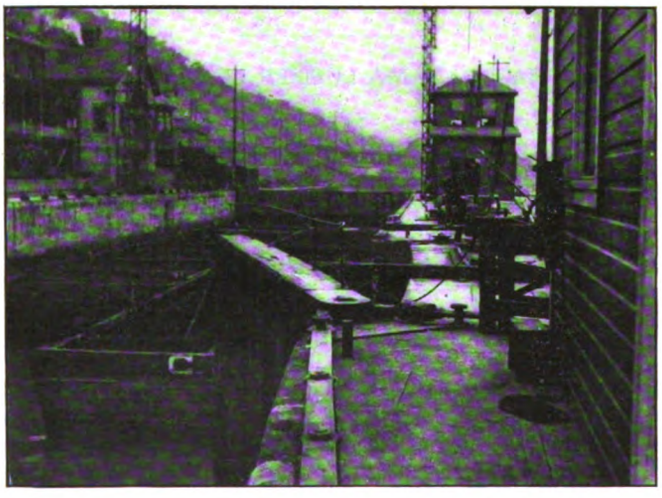
The Ohio river, while it has lost most of the picturesque features of which Mark Twain told in his stories of Mississippi steamboat life, has acquired new ones which are just as interesting although not quite as romantic and possibly not filled with the thrill which attends the telling of his stories, but the new conditions are surrounded by commercial



STEAMER ENTERING LOCK WITH EMPTY COAL BARGES.

enterprise and the rush and hurry of modern business methods. While the river interests are endeavoring to secure appropriations from Congress for a 9-ft. depth of channel from Pittsburg to a point below Cincinnati; while dams and locks are being installed to regulate the depths of water and provide better facilities for river navigation, the tremendous business of Pittsburg, the largest originator of tonnage in the world, is increasing by leaps and bounds and in providing a 6-ft. depth the government has admitted the justice of the claim that with better facilities the commerce of the rivers will increase proportionately.

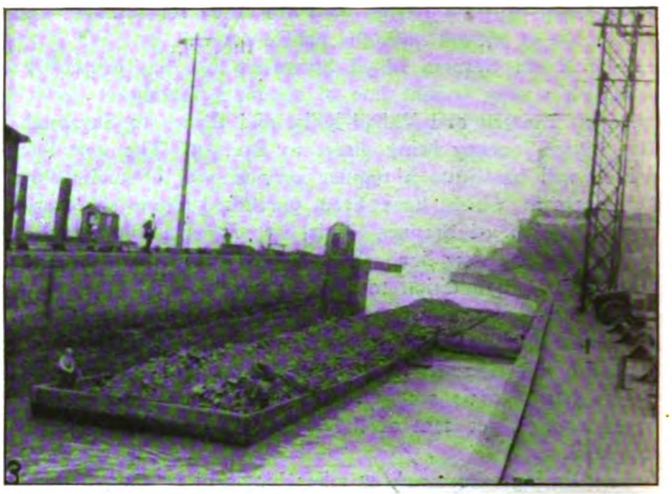
"Pittsburg to Tide Water" is the slogan of the river men, and until this is made possible to a much greater extent than



EMPTY BARGES BEING LOCKED THROUGH CANAL.

it is at the present time, the business cannot be expected to increase as it should. Six hundred steamboats and twice as many thousand other craft of one kind or another are required to take care of the annual tonnage of the Ohio and its tributaries.

It is not simply a catch word when it is stated that acres of coal are shipped in a single fleet of coal boats and barges but equally true is the statement that the rivers are navigable



LOADED BARGES BEING LOCKED THROUGH CANAL.

to this great traffic but little more than one-half the year. The coal traffic is operated in the freshet system, that is, the boats and barges are loaded whenever they are ready and held until a heavy rainfall comes along and raises the water sufficiently to allow them to proceed to their destination, Cincinnati, Louisville, Cairo, St. Louis, or to New Orleans and other Mississippi river points.

Coal boats taken to New Orleans are seldom returned, their value, about $700 each, and there are often as many as fifty in a single tow fleet, being charged as an item in the cost of transportation. With the realization of a 6 or 9-ft. channel these wooden boats and barges in the natural course of events, will become things of the past, being succeeded by barges

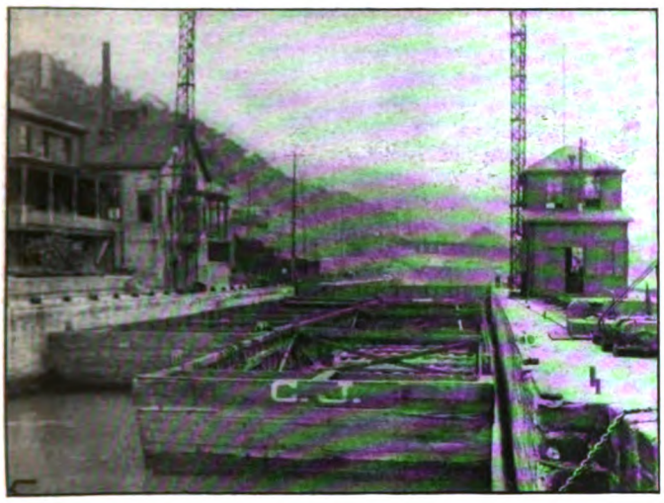
"COALIE," OR POOL BOAT ENTERING CANAL.

of steel, with greater strength and stability, longer life and capable of better service. The life of a wooden coal boat or barge is about twelve or fifteen years, and they are then abandoned. The life of a steel boat is indefinite, and the only thing in the way of their immediate general adoption is the first cost, which is several times that of the wooden craft, and the companies now in the river carrying trade do not feel justified in making the expenditure under present conditions.

There are now a score of steel barges on the river and they have proven eminent successes, immeasurably superior to the wooden boats and barges, are easier to handle, easier to load and unload, their construction facilitates the operation of the clam shell buckets and with a better waterway they are destined to revolutionize the coal trade on the rivers.

Generated on 2024-08-27 20:11 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

Several are now in the long trade and two have recently been built at the Ambridge plant of the American Bridge Co. for the American Steel & Wire Co. for the local business of



COAL BOAT AND BARGE IN THE LOCK.

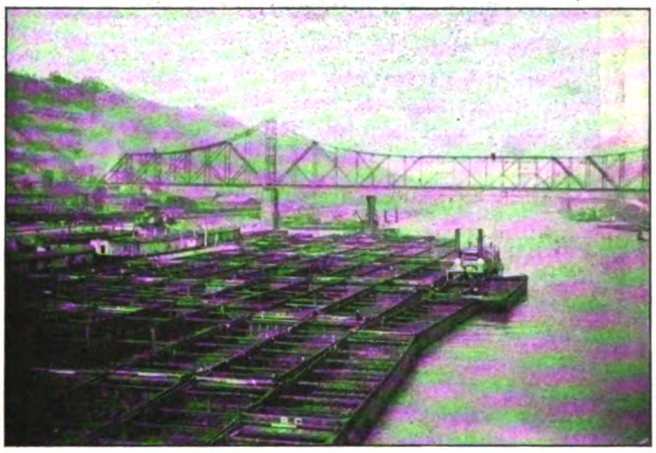
the latter company from its mines on the Monongahela to its Rankin, Shoenberger and Braddock mills. At present a barge is heavily built of wood and stoutly braced athwartship to give it rigidity. The coal boat while much larger than a barge is apparently flimsy, and in this one particular lies its value in the long coal trade below Cincinnati or Cairo and down the Mississippi river to New Orleans. River steamboat men say the stoutly built barge cannot stand the strain, the heavy swells and swift current of the Mississippi without springing a leak, while the lighter coal boat gives with each strain and one of them is seldom lost in the long trip of 2,000 miles from Pittsburg to the Southern market. The steamers in the coal trade do not carry cargo, aside from fuel.

Another feature in the river coal trade which will be of interest to lake men, but to river men is so familiar that they pay but little attention to it, is the manner in which coal is prepared for shipment out of the Pittsburg district by water. The mines from which it is taken are within a

POOL BOAT ABOUT TO ENTER SMALL LOCK AFTER TAKING LOADED BARGES INTO LARGER LOCK.

radius of 110 miles from Pittsburg, mostly upon the Monongahela river. This distance of 110 miles is divided into ten pools, divided by dams across the river and connected for the purposes of navigation by the ordinary type of lock from 150 to 250 ft. in length and having a lift or fall, as the case may require, of from 5 ft. to 8 ft. according to the stage of water in the river. The empty boats and barges that return to Pittsburg from lower points are left by the high power towing steamers in Pittsburg harbor, and from there are taken by smaller steamers, commonly called "pool boats" or "coalies," to the mine tiplets along the various pools and there loaded. They are then taken down the river through the pools and their connecting locks to Pittsburg harbor to await a coal boat stage, or sufficient depth of water to permit of their navigating down the river with the larger boats. It is not an uncommon occurrence when the pool stage of water arrives to have 5,000,000 or 6,000,000 bu. of coal started for Southern points in a single day. Not more than 50 percent of the coal boats going to New Orleans ever return, they being either too frail or the operation too expensive.

The steamer with a tow of loaded barges aggregates from three to three and one-half miles an hour. This same steamer without a tow is capable of about twelve or thirteen miles an hour. Towing on the rivers is an entirely different matter



FLEET OF EMPTY BARGES UNDER SMITHFIELD STREET BRIDGE, PITTSBURG.

from towing as it is considered on the lakes. On the rivers it is in reality not towing at all but pushing, the stern wheel steamer being behind the boats and barges being taken to their destination, while on the lakes barges or schooners are towed behind the steamer.

With this article are several photographs showing local conditions in Pittsburg harbor and the handling of coal from the mines before it is made up into tows and started for the Southern market.

The liner Binghamton was in collision with the steamer Francis Hinton off Peche island last week. The Binghamton and the Hinton were both bound down and the Binghamton has just passed the Hinton when her wheel chains parted and she sheered directly across the bow of the Hinton. The latter struck the Binghamton hard on the port quarter and both vessels swung away out of their course and grounded. The Hinton succeeded in working herself off in a short time and reported the Binghamton aground as she passed Detroit. Later the Chemung, a sister ship, attempted to pull her off, but was unsuccessful. She was released later by the tug James Reid.

The new freighter Francis L. Robbins was sunk in Lake Erie two miles below Bois Blanc island this week as a result of a collision with a dredge scow. It was a choice of a collision with a schooner or a scow and the steamer chose the scow. The Robbins lies in 22 ft. of water just outside the channel. As soon as she is lightered she will be taken to Cleveland for repairs.

Generated on 2024-08-27 20:21 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

PROSPECTIVE VIEW OF GALVESTON AND THE SEAWALL AFTER IT IS COMPLETED.

Galveston's Great Seawall.

It is a Monument of Magnitude and Strength to Industry and Zeal of Citizens.

Stretching around the eastern limits and continuing entirely along the southern side of Galveston is its massive seawall, standing as an impregnable defense and an insurmountable barrier against even the greatest storm ever known to have occurred in the gulf. This wall symbolizes in its firm construction on a solid foundation, not only the absolute future safety of the city, but also that unwavering confidence and unshaken belief of Galvestonians in this location as the supreme harbor of the Star empire and the gateway for the vast and limitless resources of the great Southwest.

Severely were Galveston's commercial interests shaken in the crisis of 1900, but then it was that courageous citizens, seconded by popular belief, decided that this city must not be deserted. Harbor location warranted reconstruction and replacement of everything damaged by the storm, and the re-establishment of the city and port of Galveston as a large factor in the commercial world. To do this required a means of assuring future safety to both life and property, even though, in all natural probabilities, the like of such another storm as came to pass here will never come again.

Not sparing efforts or counting cost of work, the building of a seawall was inaugurated and to-day in its completion it is a mighty monument, exhibiting in magnitude and strength the industry, zeal and unceasing aim of Galvestonians to make this city influential in commerce, active in progress, and a secure residential community.

Mr. Alfred Noble, General Henry M. Roberts and Major H. C. Ripley, engineers of national renown, composed the committee who first set forth in their report the objects to be gained by the construction of the seawall; namely:

To protect the city from the force of the waves and currents in the severest storms known to occur in the gulf. To protect the city entirely from the water of the bay and gulf in all such storms as occurred during the fifty years preceding 1900. To prevent the water in the severest storms, such as the one of 1900, from ever reaching a depth in the city dangerous to life or property.

While providing for the above, to arrange a filling so as to secure sufficient elevation for drainage and sewerage.

The city seawall was begun Oct. 27, 1902, and the work was completed July 29, 1904, having been carried to a successful conclusion in three months less than the contracted time, which, considering the magnitude of the undertaking, is noteworthy.

As an extension of the seawall around the city of Galveston, the United States government appropriated $591,000 to build about one mile more of wall along the beach in front of Fort Crockett and the Federal reserve adjoining the city on the west.

The total length of the seawall is about four and a half miles; it is 16 ft. wide at base, curving to 5 ft. in width at the top, being 17 ft. above mean low tide and 1 ft. higher than the highest water of the 1900 storm.

The seawall rests upon a foundation of four parallel rows of round piling placed at 4-ft. intervals and driven to a depth of 40 ft. through the sand and piercing into the clay beneath. In addition to this piling there is between the first and second rows a solid continuous sheet piling so formed as to make a tight wall 12 in. thick, extending 24 ft. below the surface, which is designed to prevent any undermining action which might in time be subjected to the wall on account of waves and currents of the ocean. Cast over the tops of these five rows of piles is a continuous concrete base into which are inserted steel reinforcing rods which extend upward and around which the wall is formed. In addition to these rods, the foundation is made with three key formations four inches in depth. These key slots run longitudinally throughout the entire length of the construction. Extending gulfward from the foundation is an apron rip-rap of granite 27 ft. wide and 3 ft. in depth.

Upon the completed foundation the seawall is cast in solid

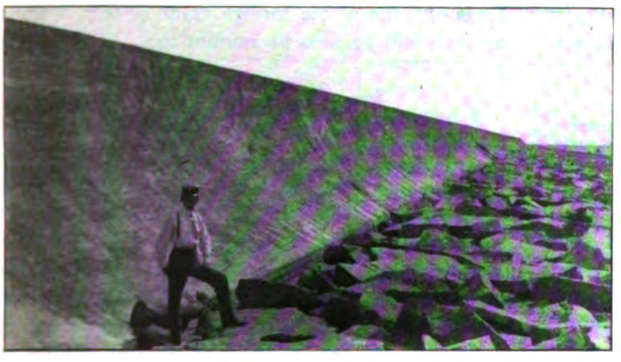
Generated on 2024-08-27 20:16 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

sections. Molds are placed and the mixture of cement and crushed granite is poured into them and when the mass has set the molds are removed. So the work is carried on, each part of the seawall being keyed and cast into solid contact with the next so that the wall, foundation and entire construction is made into one coherent mass of rock formation which hardens with age and gradually becomes indestructible. Within the wall at two feet intervals are steel reinforcing rods 1½ in. by 10 ft. long, having at either end a 4-in. washer. These rods are placed in such a way as to specially strengthen

ROUND AND SHEET PILING WHICH SUPPORTS THE SEAWALL.

the wall by binding the upper and narrower portion to the broad construction at the base.

In raising the grade of the city, which work is now being so successfully carried out, the level is put up to the top of seawall and along the space directly back of the seawall will be built a broad walk, to be enclosed on the gulf side by a railing extending along the edge of the seawall. Next there will be a wide boulevard driveway, bordered by a parking of grass with flowers, palms and trees. The walk, driveway and park will present an unobstructed view of the ocean from which comes the balmy health-giving salt water air. Residences will be erected along the boulevard high above the beautiful sea, thus presenting a charming view for miles. Hotels will be built and Galveston in time will become



THE FINISHED SEAWALL WITH GRANITE RIP-RAP IN FRONT.

widely known and visited as a resort for pleasure and health.

Galveston is situated on the eastern end of an island which is from three to five miles in width and some thirty miles in length. In striking contrast to the beach side of the city, as above described, is the north side of the city where the harbor is situated. Here are miles of fine first-class covered wharves supplied with extensive railway terminals and all facilities for the quick and rapid handling of commerce. The wharves in Galveston are unexcelled in character of construction, and the way they are maintained, by any other port in the United States. The piers and docks are spacious and furnish ample room for enormous incoming and outgoing quantities of freights. The elevator capacity of Galveston is 4,000,000 bushels.

The granite used in the construction of the seawall and also the government jetties at the entrance to the harbor at this port, was furnished from Granite mountain, where a quarry is operated by Messrs. O'Rourke & Co., the seawall contractors. Granite mountain is one of the largest solid granite masses in the United States, covering about 150 acres. As much as 500,000 tons of granite have been taken from this quarry in the past ten years. In the three and a half miles of seawall constructed by the city, there have been used 9,900 carloads of piling, 5,200 carloads of concrete, 5,000 cars of granite rock, six carloads of reinforcing rods; in all 20,106 carloads of material. To handle this vast amount of material would require 1,005 trains of twenty cars each, or one string of cars 156 miles long, each car loaded to full capacity. The weight of the seawall per lineal foot is 40,000 pounds.

The contract cost of the city seawall and filling on county right of way back of it was $1,500,000. In addition to this the citizens have provided with generous aid from the State of Texas, $2,000,000 for filling up the city, placing it practically 17 ft. above the sea. With the successful termination of the seawall construction, there has arisen a new and increased confidence in Galveston's future on the part of everyone. In a short term of years since the Federal government made appropriations for widening and deepening this harbor, Galveston has grown to be the first cotton port in the United States, the ranking port in wheat exports and third in total exports of breadstuffs, holding the fourth place in total value of exports and imports.

With the transcendent region tributary to the harbor here, this city has before her an unlimited field in future commercial conquest and achievement and upon her already splendid attainments, Galveston shall build for the future.

George W. Dickie, of the Union Iron Works of San Francisco, called in as an expert by Chief Engineer Lott D. Norton to examine 188 steel beams sent from the East for the new mail dock at San Francisco, recommended that they be subjected to the drop test, as he found thirteen cracked and indications of brittleness in the rest. The San Francisco agents of the steel firm that furnished the beams objected strongly to this, saying that the specifications call for the Carnegie test and that the drop test is at the risk of the harbor commissioners. The commissioners agreed that a condemnation of the whole lot would be within the specifications and requested the chief engineer to report fully at their next meeting. George W. Dickie says that the Carnegie test is insufficient in this case, as it does not prove the resistance of the beams against jars. He therefore insists on the drop test, which consists of raising the beams on end at an angle of 25 degrees and letting them drop. The agents say that the cracks in the thirteen beams were caused by the way in which they were stowed in the steamer that brought them here.

The proposed new Lackawanna terminal at Hoboken will have six ferry slips and sixteen tracks. The building will be absolutely fireproof. The main waiting room will be 150 ft. square and 54 ft. high. Passengers going from boats to trains will not be compelled to pass through the main waiting room, but may use a 40-ft. concourse. The exterior of the building will be 600 ft. long on the river side. A central tower will rise to the height of 225 ft. It will be electrically illuminated at night and its lighted clock faces will be one of the sights of the harbor.

Generated on 2024-08-27 20:21 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

GUNBOAT BENNINGTON INQUIRY

The cause of the disaster on the gunboat Bennington on July 21 was negligence of members of its own crew, the court of inquiry finds. Of those held responsible, only one, Ensign Charles T. Wade, survives. Court-martial is recommended in his case. The court finds that boiler B, which exploded, had been shut off from its steam gauge by the closing of a valve by mistake, and that the fireroom force kept crowding the fires under that boiler—no one paying heed to the fact that the steam gauge was not working—until it blew up.

Fireman D. N. Holland made the fatal mistake. He is dead. Frank De Courtani, oiler and acting water tender in charge of that boiler, and E. B. Ferguson, chief machinist's mate, on watch in the firerooms, both negligent in failing to discover Holland's error and remedy it, are dead.

Ensign Wade of the engineer department of the ship was at fault, the court holds, in failing to see that the steam valves and safety valve were overhauled at the proper time and kept in good order, having accepted verbal statements of subordinates that this had been done in March.

Secretary Bonaparte made public the full report as soon as he had read it himself. The court, consisting of Commodore Stevenson, retired; Capt. E. J. Moore, and Capt. Thomas S. Phelps, indorsed the findings in full. Reciting the arrival of the Bennington at San Diego, the report says:

"The ship was in an excellent state of discipline and in a good and efficient condition with the exception of the boilers, which were in fair condition and efficient, considering their age (about fourteen years), and the use to which they had been subjected.

"About 9:20 on July 21, after both boilers had been filled and the furnaces started, it was observed that the steam gauge on boiler B showed about five pounds of steam pressure, and at this time Oiler Frank De Courtani, acting as water tender, directed D. N. Holland, fireman, second class, to close the air-cock on boiler B. The said Holland climbed up and closed a valve, and almost immediately the steam gauge on boiler B failed to register any pressure. This, apparently, was not noticed by either the water tender or the fireman, and no attention appears to have been paid to the fact that the steam gauge failed to register, but they kept on working the fires and firing heavily. When the steam gauge on boiler A showed 135 pounds there was no pressure showing on the steam gauge of boiler B.

"No one seems to have noticed any escape of steam from the safety valves of any of the boilers, and no one can state that any of the safety valves blew off at any time that morning; that we can find no record of the safety valve of boiler B having been overhauled since July, 1904, nor any positive evidence of it having been done, though orders had been given for this to be done, in March, 1905; that there is no record of the sentinel valves having been overhauled since July, 1904; that the safety valves were set at 145 pounds; but en route from Honolulu to this port orders were given to carry the steam pressure at from 130 to 135 pounds, not to exceed the latter, but the safety valves were not changed; that this order had been clearly understood; that the hand gear for lifting the safety valves was not in working order, and there is no record, nor direct evidence, that the safety valves had been tested in accordance with the navy regulations."

As to the condition of the boiler, the finding is:

"After an examination of the collapsed furnace flue and from physical tests that we have had made, that the material of this furnace flue was of good quality; that the ship was found to be filling and settling when a tug was obtained, and the ship was towed into shoal water until she grounded; that subsequently the sea valves were closed, the ship pumped out and returned to her anchorage; that the ship is practicaliy uninjured, except in and about the engine and boiler rooms.

"The court is also of the opinion that D. N. Holland, fireman, second class, who was the fireman on duty firing boiler B at and before the time of the explosion, did by mistake shut off the steam valve connecting boiler B with its steam gauge instead of the air-cock, as directed, thus preventing the gauge from recording the steam pressure on its boiler; that Frank De Courtani, oiler, acting water tender, on watch in charge of this boiler from about 9:15 a. m. until the time of the explosion, did fail to observe that this steam gauge was not recording, and did continue pushing the fires on this boiler, and, further, when leaks developed from excessive pressure, did fail to relieve this pressure, which should have been done at once; that E. B. Ferguson, chief machinist's mate, on watch, in charge of the engine and fire rooms, did fail to inspect boiler B under his charge while steam was being raised, and did fail to cause this steam gauge to be connected with the boiler. The said Holland, De Courtani, and Ferguson are all now dead, and therefore no further proceedings can be taken against them.

"The court recommends that Ensign Charles T. Wade be tried by court-martial for neglect of duty in accepting verbal reports of subordinates that the safety valve had been overhauled instead of attending to this duty in person."

SHIPBUILDING AND SHIPPING IN NAGASAKI

The most important items in the recently issued report by Mr. Consul F. W. W. Playfair for Nagasaki for the year 1904 are those relating to shipbuilding and shipping. The total foreign trade of Nagasaki during the year amounted to 2,515,996*l.*, consisting of imports 2,685,642*l.* and exports 430,354*l.* The figures for the import trade of 1904 show an increase, as compared with the previous year, of 765,395*l.*, while the exports, on the other hand, show a decrease of 78,252*l.* The foreign trade of the two other ports included in the consular district of Nagasaki—viz., Karatsu and Kuchinotsu, for 1904 was: Imports, 82,746*l.*, and exports, 596,365*l.*, or a total of 679,111*l.*, showing an increase over 1903 of 14,230*l.* When these figures are added to the figures given above for the port of Nagasaki, the whole foreign trade of this consular district during 1904 will be seen to amount to:

	Value.	
	1904.	1903.
	£	£
Imports	2,168,388	1,363,376
Exports	1,026,719	1,130,358
	3,195,107	2,493,734

The increase in imports from the United Kingdom amounts to 813,657*l.* The United States, Indo-China, and Siam show substantial increases as compared with 1903. Kerosene oil accounts for the increase in imports from the United States, and rice for that from Indo-China and Siam. In the general export trade there is a marked advance in the figures for Hong-Kong and Korea, and a very slight improvement in those for Belgium and Germany. All other countries show a decrease. We need not, meantime, however, go into details.

By far the most important industrial establishment in Nagasaki is the Mitsu Bishi Dockyard & Engine Works, of which we have from time to time given detailed information. The following are particulars of work done during the year:

VESSELS DOCKED DURING THE YEAR 1904.

	Number of Vessels.	Gross Tonnage.
Japanese:—		
War vessels	15	13,552
Merchant vessels	71	162,647
Foreign:—		
War vessels	1	6,802
Merchant vessels	28	50,383
Total	115	233,384

Generated on 2024-08-27 20:39 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

The largest war vessel was of 6,802 tons, and the largest merchant ship 6,748 tons.

LIST OF VESSELS BUILT DURING 1904.

Name.	Description.	Length.	Breadth.	Depth.	Gross Tonnage.	I. H.-P.
		ft. in.	ft. in.	ft. in.		
Ceylon Maru	Single-screw steel cargo steamer	385 0	48 6	29 9	5068	3832
Dairei Maru	Single-screw steel cargo and passenger steamer	212 0	31 6	21 0	1199	1378
Kasagi Maru	Wood steam launch	60 0	15 0	7 0	42	89
Chohakusan Maru	Single-screw steel cargo steamer	280 0	37 11	22 6	2029	1894
No. 158	Wood steam launch	36 0	8 9	4 7	10	25
No. 3	Dock caisson	99 1	18 0	42 0	.....	.....
No. 5	Steel lighter	150 0	28 0	10 0	.....	.....
No. 164	Steel kerosene oil lighter	50 0	13 0	5 6	.....	.....

SHIPPING ENTERING THE CONSULAR DISTRICT OF NAGASAKI IN 1903 AND 1904.

Nationality	Sailing		Steam		Total			
					1904		1903	
	Number of Vessels	Tons	Number of Vessels	Tons	Number of Vessels	Tons	Number of Vessels	Tons
Japanese	65	6,541	192	163,386	257	169,927	776	960,953
Austro-Hung'n	.....	.....	4	10,836	4	10,836	3	7,849
Belgian	.....	.....	1	2,047	1	2,047	.....	.....
British	2	2,489	548	1,268,936	550	1,271,425	309	820,950
Chinese	.....	.....	5	2,868	5	2,868	2	2,293
Korean	.....	.....	7	2,914	7	2,644	10	575
Danish	.....	.....	3	2,617	3	2,617	7	7,878
Dutch	.....	.....	4	9,752	4	9,752	3	4,812
French	3	4,724	8	12,145	11	16,869	10	20,391
German	3	5,504	117	302,172	120	307,676	111	324,207
Italian	.....	.....	2	3,412	2	3,412	.....	.....
Norwegian	.....	.....	248	237,549	248	237,549	104	93,104
Russian	.....	.....	18	18,258	18	18,258	176	252,227
Spanish	.....	.....	4	12,031	4	12,031	.....	.....
Swedish	.....	.....	3	2,976	3	2,976	2	2,323
United States	1	809	40	221,729	41	222,538	35	140,931
Total	74	20,067	1204	2,273,638	1278	2,293,705		
Total 1903	101	28,121	1447	2,610,372	..	.....	1548	2,638,493

The following was the work in hand at the close of the year 1904:

Name.	Description.	Length	Breadth	Depth.	Gross Tonnage	I. H. P.
		ft.	ft. in.	ft. in.		
Tango Maru*	Twin-screw steel passenger and cargo steamer	445	52 0	36 6	7,463	6,499
Tahung Maru	Ditto	230	40 0	10 0	1,060	950
No. 1	Dock caisson, steel	93	17 0	33 9	.....	.....
Iki Maru	Twin screw steel passenger steamer	260	36 0	22 0	1,580	1,800
Tsushima Maru	Sister-ship of Iki Maru		.....	.....	1,580	1,600
Daishin Maru	Single-screw steel passenger and cargo steamer	228	34 0	19 6	1,259	920
Tetanrei Maru	Ditto	280	39 0	23 0	2,100	2,300
Joshin Maru	Ditto	212	32 6	20 0	1,200	1,300
Masan Maru	Sister-ship of Joshin Maru	.....	.....	.....	1,200	1,300
Total	.....	..	.....	.....	18,033	16,869

*Since completed.

In addition, a large floating dock of steel, with a lifting power of 7,000 tons; length, 387 ft. 6 in.; length over all, 412 ft. 6 in.; breadth, 85 ft.; depth, 41 ft. 7 in., was built during the year, and was successfully launched in May of this year (1905). This is to be taken to Kobe for the works of the Mitsu Bishi Co. there. No. 3 dock was completed and opened in March of this year, and the Tango Maru, 7,463 tons, was docked on the 17th of that month. Steel castings and Stone's manganese bronze castings were commenced last year, and are now produced with satisfactory results. The number of workmen employed in the establishment at the end of the year was 5,243, which shows its importance.

Nagasaki is the most important shipbuilding center in the far East, and it is certain to make its influence felt in the developments which are now going on in the commerce and industry of the Pacific area.

The war recently carried on between Japan and Russia has had a most marked effect on the shipping during the year, the three ports of Nagasaki, Karatsu, and Kuchinotsu showing a decrease of 344,734 tons. The total number of Japanese ships was 257, of 169,927 tons, against 776 vessels, of 960,953 tons in 1903, or a total decrease of 519 vessels and 791,026 tons. The majority of the Japanese vessels which entered belonged to the Nippon Yusen Kaisha and the Osaka Shosen Kaisha. The former company usually sends steamers to Shanghai, Bombay, Australia, and Europe, as well as to Korea, Vladivostock, and Formosa. For the greater part of the past year this company had to suspend its services to Shanghai, Australia, and Europe, and replace its vessels to a certain extent on other runs by chartered steamers. A considerable number of vessels were taken by the government as transports, and the lines to Korea and North China were stopped for this reason, as was the line from Japan to San Francisco, owned by the Toyo Kisen Kaisha. The vessels to Formosa were also largely replaced by chartered foreign steamers. The Osaka Shosen Kaisha is not so large a concern as the Nippon Yusen Kaisha, but it also had to cease running on some routes and replace some of its steamers, taken for government service, by chartered vessels.

The figures for British shipping at the three ports in 1904 and 1903 are as follows:

Port	1904.		1903.	
	Number of Vessels	Tons	Number of Vessels	Tons
Nagasaki	358	831,805	194	540,990
Karatsu	42	86,288	22	42,508
Kuchinotsu	150	353,332	93	237,452
Total	550	1,271,425	309	820,950

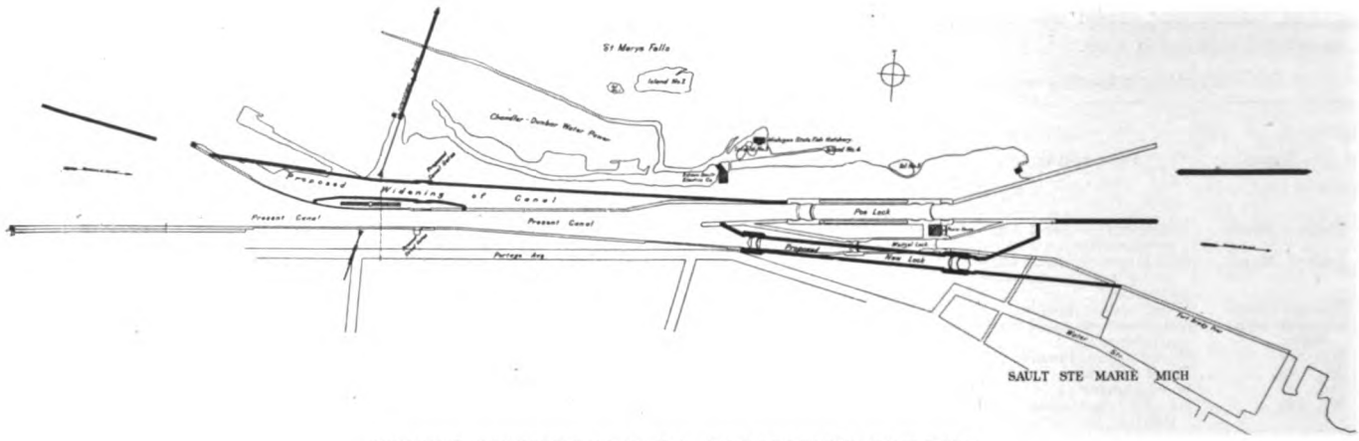
Showing an increase of 241 ships and 450,475 tons in 1904.

The tonnage of French vessels which entered the ports of the district in 1904 was 16,869 tons, as compared with 20,391 tons in 1903. German shipping shows a decrease of 16,531 tons, while the United States shipping at Nagasaki increased by three vessels and 78,624 tons in 1904 as compared with 1903. The increase is chiefly due to the fact that several very large United States steamers now make use of this port. As was only to be expected, the fall in Russian shipping is very noticeable. In 1903, 175 vessels, of 250,853 tons, entered Nagasaki; in 1904 only sixteen vessels, of 15,490 tons, entered —a decrease of 159 vessels and 235,363 tons.

The table above shows the shipping which entered the three ports within the consular district of Nagasaki in the years 1903 and 1904.

The four-masted wooden sailing ship Roanoke, one of the handsomest American clippers on the sea, was burned to the water's edge while loading ore at Noumea, New Caledonia, for Delaware breakwater. She belonged to A. Sewail & Co., owners of the Shenandoah and other well-known sailing vessels. She was built in 1892, of 3,539 tons register, 311.2 ft. long, with a beam of 49.2 ft. and a depth of 29.2 ft. Sailors had a bad opinion of her, as she met with many mishaps. She was badly charred by fire at Honolulu and on a voyage from Australia her commander committed suicide by jumping overboard.

Generated on 2024-08-27 20:11 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY



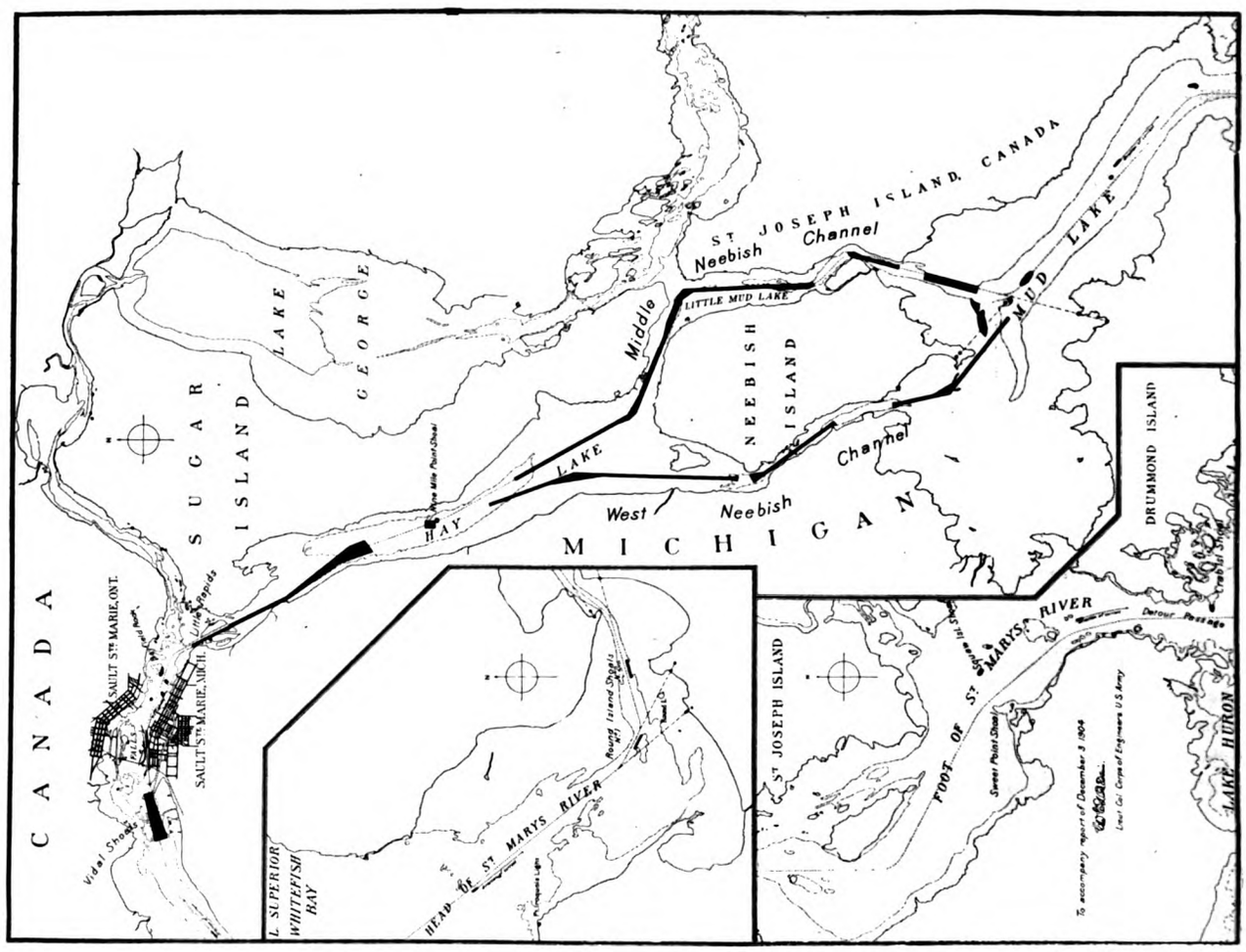
SHOWING WIDENING OF CANAL AND PROPOSED NEW LOCK.

PROPOSED LOCK AT THE SAULT

Lieut. Col. Charles E. L. B. Davis, government engineer with headquarters at Detroit, has filed with the secretary of war a report setting forth the necessity of an improved lock at the Sault and the probable location thereof. The new lock is to be 1,800 ft. long and 70 ft. wide. Lieut. Col. Davis prefers this form to a wider lock in which vessels may be arranged side by side, since much time is lost in moving vessels into such position after entering the lock. The exact location of the lock, however, is still in abeyance. A sketch is submitted herewith showing the proposed new lock on the side of the Weitzel lock, but this location is simply provisional.

RAILWAYS VS. SHIPS AS ORE CARRIERS

Some years ago President Jas. J. Hill, of the Great Northern road, made the statement that in time the great lake routes for freight would not be able to handle goods for less cost than the rail lines. He based the assertion on the well-known improvement then under way on all leading lines of railway—the heavier motive power, the bigger cars which required a much smaller fare, the rebuilding of tracks to do away with grades and curves, the heavier rails and bridges, and the almost complete rehabilitation of freight roads. Whatever Mr. Hill says is listened to with attention and taken as fact, without much thought of its meaning, and the statement was the theme for much newspaper writ-



SHOWING IMPROVEMENTS IN ST. MARY'S RIVER.

Generated on 2024-08-27 20:11 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

ing and many prophesies, these dealing largely with the decadence of the great lakes as a highway for traffic, and the entire obliteration of such waterways as the Erie canal.

But neither the great lakes nor the canal have willingly sunk into the background; the lakes are carrying many times their business of those days and cutting steadily more and more into rail transport, and the canal is about to be enlarged by the expenditure of a vast sum, so as to increase its capacity and cheapen its business.

Mr. Hill himself has just furnished a most interesting series of facts bearing on this matter, which emphasize the importance of the water route over the all-rail. This spring the Colorado Fuel & Iron Co. found itself compelled to go to Lake Superior for high grade Bessemer ore for mixing in its furnaces, to produce Bessemer rails and shapes. Through Mr. Hill's road it made contracts for the delivery of 100,000 gross tons of iron ore from a point on the Mesabi range on Mr. Hill's line, and this ore is now being hauled at the rate of about 700 tons a day—about one-tenth of what an average modern ore ship on the lakes would carry. The haul to the company's furnaces is a very long one, by far the longest that lake ore has ever taken, and the roads were importuned to make the lowest rate possible. They did so, and the figure under which this ore is moving west is by considerable the cheapest ever known in the history of western railroading. The ore is hauled over four roads—the Great Northern from Hibbing to Sioux City, the Northwestern to Omaha, the Burlington to Denver, and the Rio Grande to Minnequa. The distance is 1,273 miles, and the rate is $4.50 a gross ton, or almost precisely 3.1 mills per net ton-mile. This was the best the roads were able to do. But the average rate of ore carrying on the lakes this year, and for several seasons past, is just about a fourth of this figure.

It will be some time before the railroads are able to cut their rates in four parts and get down to where the ships of the great lakes now stand. And while they are doing it the great lakes are undergoing the same improvement that has characterized lake commerce since the time when Mr. Hill made his prophesy,—since the day that a 3,000-ton ship was a monster and the cost of carrying stuff several times what it now is. It is not alone the railroads that can advance in methods and capacity, every class of transportation is improving and he is a bold man who can assert what will happen in a brief span.

STEAM JET OR FAN BLOWER

Careful experiments, conducted some years ago at the New York navy yard, to determine the best form of steam jet for producing forced draft in launch boilers showed that from 8.3 to 21.2 percent of the steam produced by the boiler was consumed by the jet. In a jet which had a hole only one-sixteenth inch in diameter, and which was the most economical of all, the steam used was one pound in two minutes. The amount of steam required by a fan blower is under ordinary conditions from a fraction of one percent up to a possible maximum of three or four percent in small boiler plants or with uneconomical apparatus; and practically the whole of this expenditure of power, in the form of exhaust steam, may be subsequently utilized for heating or similar purposes.

The case of a steam jet may be briefly summarized thus: It has the advantage of costing very little to put in and keep in repair. Its disadvantages are: First, it requires a very large amount of steam to run it; second, it introduces a large amount of water or steam, all of which has to be heated and carried up chimney; third, unless very carefully managed there is a large development of carbonic oxide, hydrogen and marsh gas, due to dissociation of the water, which has a tendency to carry off a great deal of heat in the stack; fourth, the intensity of draft producible by this means is distinctly limited; and, fifth, and by no means least, the noise incident to its use is at times almost intolerable.

The late Mr. Eckley B. Coxe thus expressed himself: "The fan is most expensive to install and may cost more to keep in order, but where the arrangements can be made to utilize the heat in the stack gases it is more economical so far as heat units used are concerned. It has one great advantage, it is possible to at all times obtain the exact blast necessary to produce the best results in the furnace, which is very important.

ITEMS OF GENERAL INTEREST

On the night of July 27, a log raft owned by Healy & Tibbits, contractors, while being towed from Point Richmond, Bay of San Francisco, went adrift, the chain binding the logs having broken. The ferry steamer Berkeley struck some of the floating piles, sustaining some damage and frightening her passengers.

Two days before the U. S. A. T. Warren reached Honolulu, on the way from Manila and Nagasaki to San Francisco, she lost one of the blades of her propeller. During her stay at Honolulu her cargo of coal was discharged at the after end until the propeller was raised out of the water. Then, under the direction of Chief Engineer Hughes, her crew put a new blade on, the work of removing the stump of the old blade and putting on the new one, occupying only three hours. The task of discharging and replacing part of the cargo occupied ten days. The transport will go out of commission.

The steamer Neptune, designed for the American Touring & Lightering Co., to be used on the Atlantic, was bought by the United States Government while she was still on the ways in the yards of the Spedden Co., of Baltimore. Her dimensions are: length, 109 ft.; beam, 23 ft.; depth, 11 ft. 2 in. Her tonnage is 188 gross and 127 net, and her engines are capable of developing 350 H. P. The Neptune will be used by the boarding inspectors of the quarantine service, of San Francisco to go to incoming liners and to tow the fumigating barge now in course of construction, by N. A. Boole. The barge replaces the old frigate Omaha, and will be towed alongside the vessels to be fumigated, instead of tieing the ship up to the fumigating hulk, as is done at present. On the arrival of the Neptune, the Sternberg, now used by the quarantine officers as a boarding cutter but formerly as a fumigating boat, will go out of commission. The Neptune left Baltimore on June 15.

The following sales have been reported through the office of Stanley M. Seaman, yacht broker, 220 Broadway, New York: Sloop Rosalie for Geo. C. Carson, Philadelphia Corinthian Yacht club, to Henry F. Parmelee, New York Yacht club. Rosalie was designed by Wm. Hardner and built in 1903 by Holmes Ship Building Co. She is 65 ft. over all, 43 ft. water line, 14 ft. beam and 8 ft. draught; accommodations consist of one state room, bath, large saloon, galley and crew's quarters. She is fitted out and is now cruising along the coast. Auxiliary yawl Dawn II, for Dr. E. N. Brandt, Larchmont Yacht club, to Wm. Hanson Hodges, Baltimore Yacht club. Dawn II was designed and built in 1903 by Read Bros., Fall River, and is 60 ft. over all, 40 ft. water line, 14 ft. beam, 5.5 ft. draught; has excellent accommodations, including electric lights and equipped with a 20 H. P. standard engine. She will be used for cruising on Chesapeake bay and vicinity. Knockabout Cicada for A. B. O'Niel to A. Almquist, of New York. Knockabout Elise for A. F. Bowen, of Newport News, to C. W. Grandy, of Norfolk, Va.

Generated on 2024-08-27 20:11 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

LOAD LINE OF SHIPS

A London dispatch says that the foreign ships (statutory requirements) committee, of which Mr. Bonar Law is chairman, has presented the following report:

Your committee, originally appointed in 1904, and reappointed during the present session, has held nine meetings for taking evidence and examined eleven witnesses. The statutory requirements to which special attention has been drawn are those for preventing overloading and unseaworthiness, those relating to emigrant ships, the provisions as to the proper stowage of grain cargoes and the rules as to life-saving appliances. The subjects of the limitation of the liability of shipowners and of injuries sustained by workmen on foreign ships were also brought before us.

In order to prevent overloading British ships are required to be marked with a load line, and the owner or master is liable to a penalty if the ship is at any time so loaded as to submerge this mark in salt water. The ship may, in addition, be detained if overloaded on a voyage outwards from the United Kingdom. Foreign ships which have taken any cargo on board at a port in the United Kingdom and are overloaded may be detained, but there is no other penalty, provided there is no requirement as to marking and no restriction as to the loading on inward voyages. In practice foreign ships are frequently overloaded on voyages to the United Kingdom. They are also overloaded to a certain extent on voyages from this country, and the fact that they are not marked may in some cases assist them in escaping detection. The load line fixes the limit to which it is safe and prudent to load, and the rules by which it is determined can at any time be modified to meet altered conditions. We do not think it will be unreasonable to require foreign ships to observe a loading limit when entering as well as leaving our ports and to prescribe that they shall be marked with a load line. It is desirable that foreign shipowners and masters should realize that by being so marked they would save themselves the trouble and delay that an inspection without its guidance must involve. It would be satisfactory if this loading limit could be fixed by internatonal agreement, and we are informed that there is a movement in some of the principal foreign countries in the direction of adopting a load line. The time, therefore, seems opportune of his majesty's government to endeavor to arrange for the adoption of uniform rules of loading by the governments of the principal maritime countries; but it will facilitate the negotiations of the government if provided with adequate powers, as is the case in the matter of tonnage measurement under section 84 (3) of the Merchant Shipping Act, 1894, and we recommend that power be given the government to apply by order in council, in ports of the United Kingdom, the British rules as to load line to the merchant ships of any country which do not comply with rules as to loading which are substantially equivalent to those in force in this country.

British ships at ports in the United Kingdom which, by reason of the defective condition of their hull, equipments or machinery, cannot proceed to sea without serious danger to human life may be detained, but this provision does not extend to foreign ships. We do not think that foreign vessels ought to be allowed to go to sea from our ports if they are so unsafe as to endanger life, and we recommend that the provisions of Section 459 of the Merchant Shipping Act, 1894, should in future be applied to foreign as well as British ships.

Where a grain cargo is loaded on board any British ship all necessary and reasonable precautions must be taken to prevent the grain cargo from shifting. This requirement does not apply to foreign vessels, although the regulations as to another kind of dangerous cargo, viz., timber, do apply to them. We recommend that foreign vessels which bring cargoes of grain to the United Kingdom should be required to adopt reasonable precautions, and should, so far as is practicable, be subjected to the provisions of the Merchant Shipping Act which regulates the loading of grain on British ships.

It has been urged that foreign emigrant ships which call at ports in the United Kingdom should be required to comply with our regulations as to emigrant vessels, whether they take emigrants on board here or not. Shipowners are not unanimous on the subject, and we cannot support this contention on the ground that it is necessary in the interests of safety. We are therefore unable to make any recommendation on the subject.

We recommend that the government should be empowered to apply by order in council the rules as to the provision of life-saving appliances to the ships of any country which do not substantially comply with the requirements of these rules.

The subject of limitation of liability does not come within the terms of our reference, but we think that it deserves careful consideration. The question of injury to workmen on foreign ships has been dealt with in a bill of this session which has now passed.

PRACTICAL SHIP CANAL

"What we are working for is a practical ship canal, capable of handling big ships of modern build for a good many years to come. We want it built at a reasonable cost in a reasonable time."

Chairman Theodore Shonts, of the Panama Canal Commission, stated the purpose of the commission in the above words. He is now at the commissioner's office in New York preparing for the meeting of the consulting board of engineers, which will be held Sept. 1, and which will advise the commission as to the character of the canal to be built—sea level, 30 ft. or 80 ft. level, as may be deemed best under all circumstances.

"There is loyalty, zeal, and I may say enthusiastic unanimity of sentiment among the engineers and employees now on the work," said Mr. Shonts. "There has been some friction and conflict of authority. The force is now organized in five divisions, each with a division engineer responsible for his particular work. The chief engineer has full authority.

"Don't think that work has been suspended on the Isthmus. I think there is more earnest effort being put forth now than at any previous time. It simply amounts to this: You have got to have houses for the men to live in, and you have got to feed them. We are now aiming to have enough quarters to give each man 500 cubic feet of air. Sickness had nothing to do with the suspension of work at digging, but we propose to house and feed the men so that sickness will be reduced to a minimum.

"A comprehensive plant has been formulated for moving 25,000,000 cubic yards of dirt. Until the type of canal is determined I can't say what percentage of the canal that figure will complete, but it will be a big hole. At present we have steam shovels on the Isthmus, and tracks for them to work on, but we haven't enough cars and tracks to haul the dirt away from the shovels. Until these are supplied and in working order it is useless to excavate, because the percentage of efficiency will be away below the capacity of the shovels.

"The Panama railroad was in good physical condition, but when we took hold I don't think it was up to sixty per cent of its efficiency. We are raising its standard according to American ideas of railroading, increasing terminal facilities at both ends, and we can soon handle our own business and trans-Isthmian traffic without the congestion that is causing trouble now. Double-tracking the road is unnecessary, because as the work proceeds temporary sidings can be established without interfering with through traffic. We want,

Generated on 2024-08-27 20:10 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

however, rock ballasted road that will do the business we want done.

"The work is going to be done just like any railroad or corporation undertaking. The organization is simple but effective, and it is easy to locate authority and responsibility. Our opening of the commissary to all employees was necessary on account of the high price of all necessaries. The Panamans are typical Southerners. Our ten thousand strangers found no preparations for their reception and prices were very high. Eggs were $1.20 a dozen when I got there. As soon as the congestion is relieved prices will straighten themselves out."

DETROIT RIVER TUNNEL

Wm. H. Newman, president of the New York Central, who is also president of the Detroit River Tunnel Co., is expected to authorize a bond issue or an issue of short term notes, soon after his return from Europe. The amount will probably be $10,000,000. It will either be taken over or guaranteed by the Michigan Central & Canada Southern. The latter road has already authority granted by its stockholders to purchase or guarantee the stock and bonds of any tunnel company it should become identified with. The $3,000,000 capital stock of the new Detroit River Tunnel Co. and the bonds it will issue later will be for the most part held by the two lines which will be the direct beneficiaries of the tunnel between Michigan and Canada under the Detroit river. Awaiting Mr. Newman's return from abroad are comprehensive plans of the tunnel prepared by the engineering commission appointed last spring. The tunnel will be three miles long and will cost from $7,000,000 to $10,000,000.

LAUNCH OF THE FRICK

On an even keel and in view of 6,000 spectators the Pittsburg Steamship Co. freighter Henry C. Frick was launched at exactly noon last Saturday at the West Bay City yards of the American Ship Building Co. The Frick is the last of the four so-called 10,000-tonners built for the Pittsburg Steamship Co., and the largest vessel ever launched on the eastern division of the great lakes. While there was less ceremonial connected with her dip than is usual, popular interest in the launching was greater and the yards were crowded, while the docks on both sides of the river were black with people. The first sway of the monster hull was signaled by men along the docks to factories a mile away, and scores of whistles, including a gathering of engines in the Michigan Central yards just north of the ship yards, raised an earsplitting din, lasting for five minutes.

Mrs. E. C. Collins, wife of E. C. Collins, traffic manager of the Pittsburg Steamship Co., was sponsor for the vessel. The Frick has her boilers and engines and other machinery in place, but despite the enormous weight she left the ways even more smoothly than usual.

The Frick has been thoroughly inspected by officials of both the American Ship Building Co. and the Pittsburg Steamship Co., and Superintendent Timm of the West Bay City yards, her constructor, has been highly complimented upon the perfection of the vessel. Her master will be Capt. Neil Campbell, of Cleveland, with Martin Johnson, of Cleveland, as first officer. A. L. Eggert, of Cleveland, is chief engineer, and Jacob Oscar, of Saginaw, assistant engineer. The Frick will leave the yards for Duluth in about three weeks.

Material for the two Gilchrist freighters is being delivered and the keel for the first boat will be laid in a few days. The new double ender air compressor, with considerable more capacity than the compressors now in use, is being erected.

AROUND THE GREAT LAKES

The steamer Malietoa, of the Pittsburg Steamship Co., will be docked for repairs to her stern bearing.

The Chester freight line steamer Tinicum, which is being built at Roach's Ship Yard, Chester, Pa., was launched last week.

The steamer Peter White, fitting out at the Ecorse yards of the Great Lakes Engineering Co., will get away Sept. 8 or 9.

The barge Constitution, which grounded at Huron last week, was released after part of her ore cargo had been lightered.

Day trips on the D. & C. line between Detroit and Cleveland will be discontinued for the season after Sept. 3, next Sunday being the last day of the service.

Major Lansing H. Beach, lighthouse engineer, has chosen the northeasterly of the three rocks of the group known as the Rock of Ages as a site for a lighthouse.

The steamer Charles B. Hill left the Ecorse yards of the Great Lakes Engineering Works last night and was towed to the up river plant, where further work on her machinery will be done.

A special from Detroit says that an order has been placed with the American Ship Building Co. by Herbert H. Oakes of Detroit, representing Buffalo and Detroit interests for a freight steamer to be a duplicate of the Amasa Stone for 1906 delivery.

The schooner Emma L. Hutchinson, thought for two days last week to have been lost, arrived safely in Cleveland harbor Saturday afternoon considerable the worse for a bad shaking up on the trip from Huron. She was sheltered behind the islands after breaking away from the tug which had been towing her.

A gang of longshoremen had an exciting experience on No. 3 lighter of the Merchants Lighterage Co. in Chicago river last Friday. The lighter, evidently overloaded, listed and began to fill, almost causing a panic among those on board and from throwing $10,000 worth of merchandise into the river. The men escaped to the docks.

President E. F. Blomeyer, of the Pere Marquette Steamship Co., predicts that the car-ferry business of the company will more than double during the coming winter and that it will be necessary to increase the fleet of ferries, which is already the largest on the great lakes. The company now owns six big ferries, but one of them, Pere Marquette No. 16, is in service on Lake Erie.

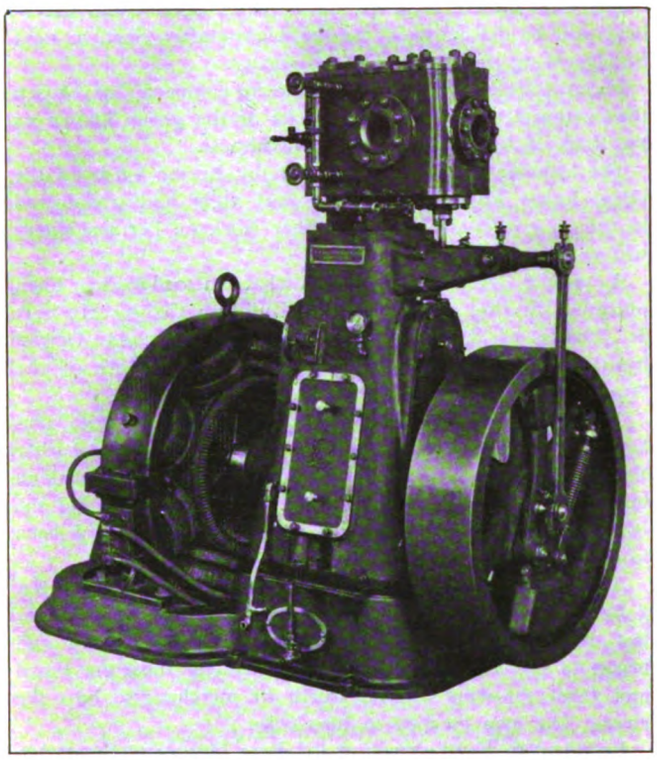
The increase in the package freight movement on the lakes is becoming pronounced, so much so that, if the present rate of gain continues, the various railroad-steamship companies will find it necessary to put on additional boats. The movement is in both directions between Chicago and Buffalo. The west bound freight is heavy in view of the big crops, and all parts of the West are taking almost unlimited quantities of manufactured products, while grain and western products, particularly flour, are being sent eastward practically in equal volume.

The shipyard formerly conducted by the Columbia Iron Works at St. Clair, Mich., and which has latterly been operated by the Great Lakes Engineering Works under lease, has now been purchased outright by the latter company. It is the intention of the Great Lakes Engineering Works to greatly extend the capacity of the yard and for that purpose options have been secured upon an adjoining property. At present the yard has only one building berth, but it is intended that it shall eventually have three. The steamer Frank J. Hecker, building at this yard for the Gilchrist Transportation Co. of Cleveland, will be launched on Saturday of this week.

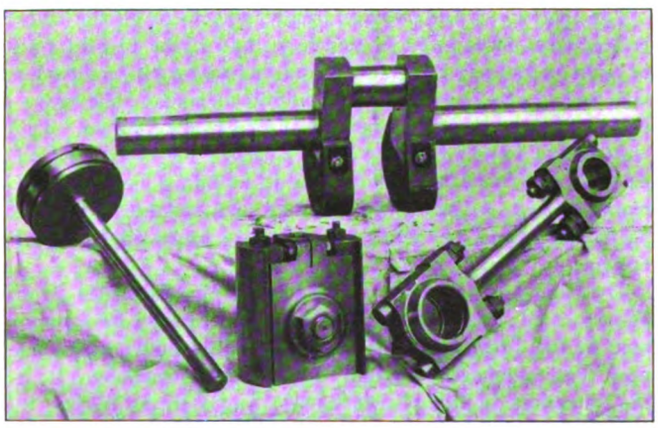
Generated on 2024-08-27 20:21 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

STURTEVANT 25 K. W. SET

This generating set consists of a B. F. Sturtevant Co.'s 9 x 8 single, vertical, enclosed automatic engine, direct connected with solid sub-base, extended shaft with through bolted coupling and outboard bearing to a B. F. Sturtevant Co.'s 9-100 M. P. 8 compound wound generator. Its output of 25 K. W. is developed when operating at a speed of 350 r. p. m., with 90 lbs. steam pressure at the throttle. The cylinder and steam chest is neatly covered with sheet iron lagging, enclosing a thick layer of the best quality of asbestos or magnesia fiber. The cylinder is provided at each end with relief valves of large diameter, adjustable to open auto-



matically, at any pressure desired. The piston is cored out and provided with internal ribbing, making it very light and strong. It is secured to the piston rod by being forced upon a taper and by a nut. The piston is provided with cast iron packing rings so turned as to insure a perfect fit in cylinder.



The piston rod is of open hearth steel, running through a deep stuffing box. The rod does not touch the cylinder head, which is bored large, a bronze ring fitting the rod in the bottom of the stuffing box, preventing escape of packing to the interior of the cylinder.

Valve is of balanced piston type, working in removable brushings, and provided with cast iron packing rings so turned as to insure a perfect fit in cylinder. The guides are cast in one piece with the frame. The crosshead is of cast iron fitted with adjustable shoes and containing the crosshead pin which will be of steel flattened on two sides.

The connecting rod is of forged steel, provided with removable boxes at each end and lined with babbitt metal hammered in and bored out. The shaft is of open hearth steel, forged in one piece. Counterweights of cast iron are securely bolted to crank webs. The valve is connected by a rocker and rod to an eccentric directly attached to an inertia governor of the Rites type. This is placed on the flywheel of the engine and will automatically regulate the speed within 2 percent from no load to full load. All pins and rods are of open hearth steel. The bearing pins of the governor are hardened and ground. The rocker is of cast iron and the eccentric strap of cast steel or malleable iron.

The cylinder is tapped for indicator gear. Gear is so arranged that cards may be taken without interfering with oil tightness of case. The cylinder is raised from the frame and a stuffing box for the piston rod is fitted in the top. This prevents oil being carried into the cylinder on the rod and cylinder condensation mixing with oil in frame. At the same time this arrangement will give ready access to the stffing boxes while running.

The engine is mounted on a sub-base of neat design. Engine and sub-base are painted with a well finished surface, and the cylinder head, steam chest cover, and rims and face of flywheel are highly polished. Access to the reciprocating parts is obtained through oil tight plates on the sides and ends.

The system of lubrication is of the type known as forced, consisting of an oil pump operated from the main crank shaft, and forcing oil at from 10 to 20 lbs. pressure into the main bearings, through crank shaft, web, crank-pin, through the connecting rod to crosshead pin. Connection is also made from the oil pump to the main crosshead guides. This system serves not only to positively deliver oil to all bearings, but to also maintain under pressure a film of oil between the two bearing surfaces, thereby greatly reducing the friction and increasing the mechanical efficiency of the engines. The thorough enclosure of the engine prevents all splashing of oil into the engine room.

China is preparing to remodel her navy, funds for this purpose having already been provided. A ministry of marine is to be formed, the organization and technical language to be used being borrowed from Japan. A Japanese naval officer of high rank will be secured as adviser. The headquarters of the navy will be at Tientsin, where the buildings of the naval department will be established. Stations will be created at Shanghai, Chefu, Nanking, Chusan archipelago and at Tapengi (or Mirs bay), whence the American fleet set out for Manila bay in the Spanish war. The stations now existing at Tientsin and Nanking will be strengthened and naval schools with Japanese and foreign instructors will be established at each of the six stations.

The Toyo Kisen Kaisha Steamship line will resume business between San Francisco and the Orient in Sept. The America Maru will leave San Francisco for Yokohama on the 15th, and the Nippon Maru and Hongkong Maru will go into service as soon as they can be put into commission. Shortly after the Russo-Japanese war broke out, these three vessels were converted into auxiliary cruisers, but the government has now handed them back to the steamship company.

Generated on 2024-08-27 20:08 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

2 05

NEW YORK PUBLIC LIBRARY
ASTOR, LENOX AND TILDEN FOUNDATIONS.

VOL. XXXII. CLEVELAND, AUGUST 31, 1905. No. 9.

THE ARBECAM ADJUSTABLE COMPASS-DEVIATION-CORRECTOR

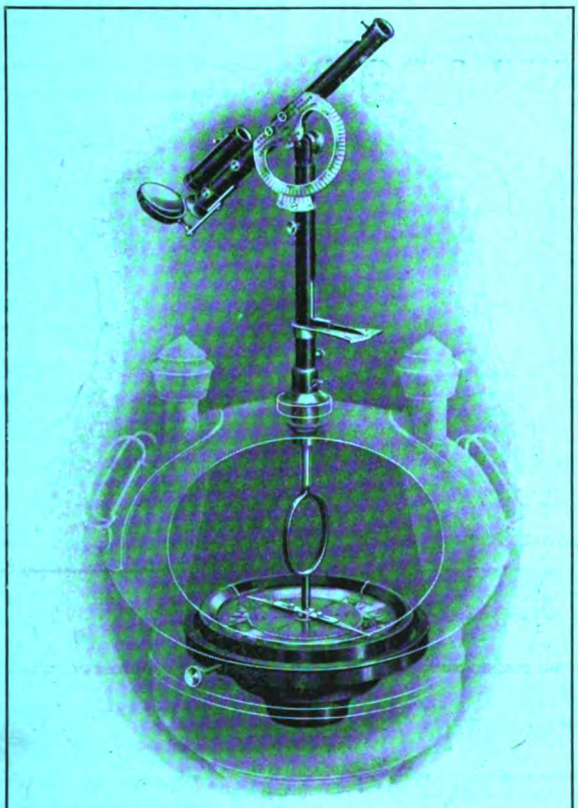
POSITION AND DISTANCE FINDER

One of the Greatest Aids to Modern Navigation. Should be on every ship worth insuring.

Readily fitted to any Binnacle

Descriptive Booklet sent free.

Agents wanted at all Important Ports



PATENTED IN UNITED STATES AND FOREIGN COUNTRIES

USES

Correct Readings instantly obtained on face of Compass without computation. Ship's position accurately placed. Distances readily obtained by Triangulation, etc.

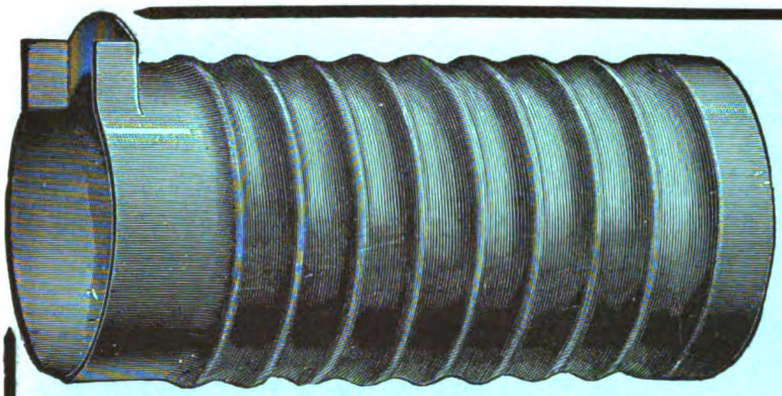
An entirely new instrument. Endorsed by highest Naval and Merchant Marine Officials. Simple, Effective. Does work of several now in use, equally well and work that no other instrument can do.

"A modern necessity on board ship."

B. V. HOW, General Agent

106 Tremont Street **BOSTON, MASS.**

Generated on 2024-08-27 20:21 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY



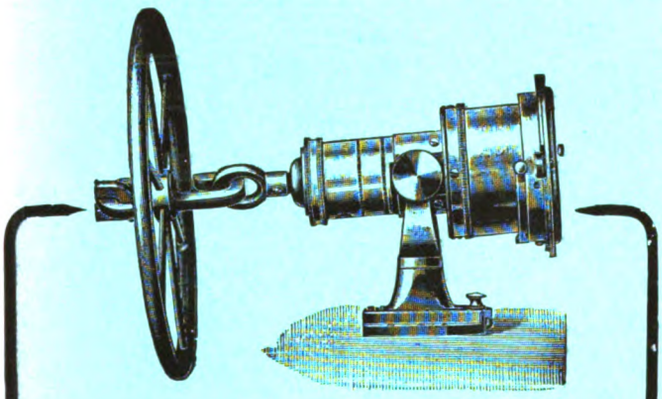
Morison Suspension Boiler Furnaces

For Land and Marine Boilers

Uniform Thickness—Easily Cleaned
UNEXCELLED FOR STRENGTH

Also Fox Corrugated Furnaces

Manufactured by **THE CONTINENTAL IRON WORKS,** West and Cayler Sts., NEW YORK.
Near 10th and 23d Sts. Ferries
Borough of Brooklyn.



THE "NEPTUNE" LOG

The "Neptune" Ship Log has ball bearings for high speeds. We also make the "CHERUB" and "HARPOON" Ship Logs.

MAKERS TO THE BRITISH NAVY

THOMAS WALKER & SON

BIRMINGHAM, ENGLAND.

THE
BROWN HOISTING MACHINERY CO.
INCORPORATED

Sole makers of the **"Brownhoist" High Speed Cantilever and Gantry Cranes.** The most economical cranes for covering large areas in steel works or ship yards.

Machinery
for handling Structural Work,
Marine Plates, etc., in Ship Building Yards.

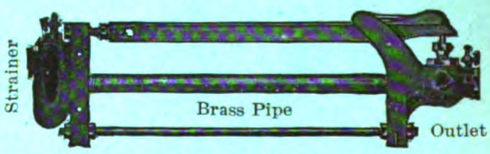
Coal and Ore Handling Machinery

Cranes of all Types
Steam Electric and Hand Power.

26 Cortlandt St. NEW YORK CITY
MAIN OFFICE AND WORKS, **CLEVELAND, O., U. S. A.**
Carnegie Building PITTSBURG, PA.
European Office, 39 Victoria St., LONDON, S. W.

Kieley Expansion Steam Trap

Best Trap Made For Marine Work



Good for any pressure. Valve opens full area.

Also Reducing Valves, Steam Separators and Open Float Traps for Marine Purposes.

Write for Catalogue. SENT ON TRAIL.

KIELEY & MUELLER, 34 West Thirteenth Street, NEW YORK CITY.

SHIP MACHINERY, embodying the latest designs and many important patented improvements.

Sole builders of the Original and Only AUTOMATIC STEAM TOWING MACHINE.

Established 1857

AMERICAN SHIP WINDLASS CO.
Providence, R. I.

P. O. Box 53

We have completed our new Iron Foundry, and are prepared to execute orders for Castings, guaranteeing first-class work, prompt service and reasonable prices.

Send for illustrated catalogue

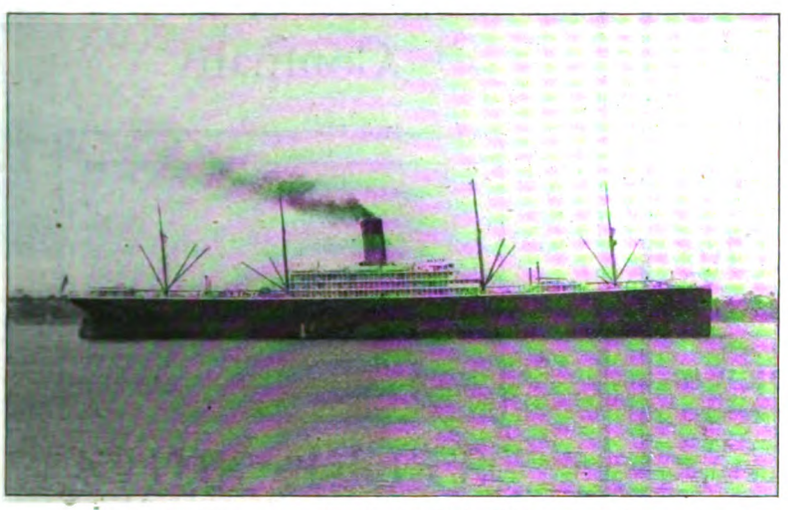
Address FRANK S. MANTON, President

Generated on 2024-08-27 20:08 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

MARINE IRON WORKS,
INCORPORATED.
BUILDERS OF
MARINE ENGINES
AND BOILERS.
HIGH PRESSURE
COMPOUND
TRIPLE EXPANSION
PADDLE WHEEL.
COMPLETE OUTFITS OF
MARINE MACHINERY
A SPECIALTY.
STATION A. CHICAGO, ILL.

SUPPLEMENTARY CATALOGUE FREE ON REQUEST.

Hyde Windlasses and Capstans



Steamship Minnesota equipped with Hyde Windlass and Capstans.

Selected for the Minnesota and Dakota of the Great Northern Steamship Co.'s fleet—the largest vessels ever built in the United States. They are also being installed on nearly all of the vessels now building for the Navy Department, Revenue Cutter service, Lighthouse Board and the United States Coast Survey.

Reason—Their Superiority

Send for Illustrated Catalog.

HYDE WINDLASS COMPANY
BATH, MAINE

OTIS STEEL

SHIP PLATES FLANGE PLATES TANK PLATES STEEL CAR AXLES FORGINGS OF ALL KINDS

"Otis" Fire Box Plates a Specialty.

STEEL CASTINGS FROM 100 TO 100,000 LBS.

OTIS STEEL CO., Ltd., Head Office and Works, CLEVELAND, O.

AGENCIES.

New York: Thorpe, Platt & Co., 97 Cedar St.
Montreal: Homer Taylor, 183 St. James St.
St. Louis: C. A. Thompson, 516 N. Third St
San Francisco: John Woodlock, 154-156 First St.
Detroit: George W. House, Union Trust Building.

Generated on 2024-08-27 20:12 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

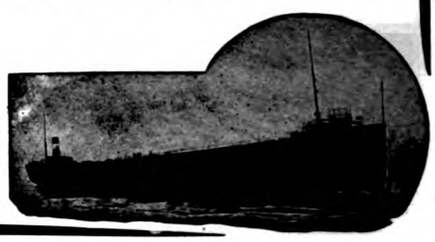
The American Ship Building Company

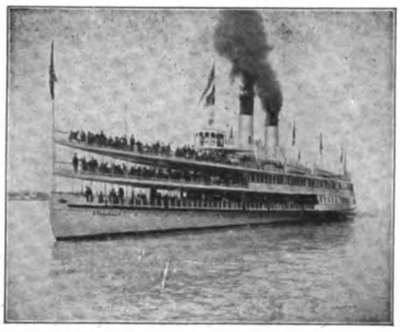
MAIN OFFICE CLEVELAND, OHIO

Marine and Stationary Engines **STEEL SHIPS** Boilers and Auxiliary Machinery

Sole Agents for the Lakes for the Ellis & Eaves Induced Draft System, as applied to boilers, giving increased power and great economy.

WORKS AT CLEVELAND AND LORAIN.





Detroit Ship Building Company

SHIP AND ENGINE BUILDERS

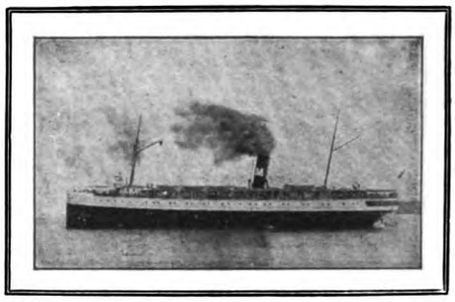
Sole Owners for the Lakes and Atlantic Coast of the HOWDEN HOT DRAFT SYSTEM as applied to Boilers, giving increased power and great economy.

Steel Ship Yard located at Wyandotte, Michigan Wooden Ship Yards and Dry Docks, Foot of Orleans Street, and Foot of Clark Ave., Detroit, Mich.

Alexander McVittie, President and Manager
William C. McMillan, Vice President
M. E. Farr, Secretary and Treasurer
Charles B. Calder, General Superintendent
Frank E. Kirby, Consulting Engineer

WM. L. BROWN, Pres. R. C. WETMORE, Sec'y and Treas.
J. C. WALLACE, Vice-Pres. C. W. FREY, Ass't. Treas.
ALFRED G. SMITH, Gen'l Supt.

Chicago Ship Building Company



STEEL SHIPS

Passenger or Freight

ANY SIZE

Yards, Dry Docks and Repair Shops at South Chicago, Ill.

The Superior Ship Building Company

SHIP AND ENGINE BUILDERS

Dry Docks and Repairs of all kinds

Large stock of material always on hand for Repairing Wooden and Metal Ships.

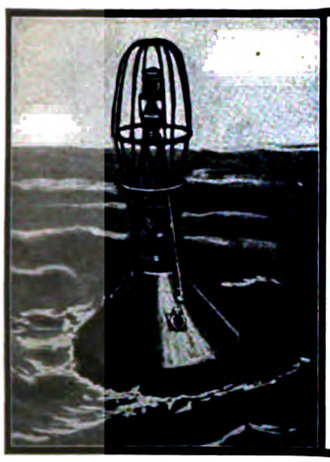
Repairing promptly attended to, Night or Day.

WEST SUPERIOR WISCONSIN

Generated on 2024-08-27 20:21 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

Digitized by Google

Original from NEW YORK PUBLIC LIBRARY



Pintsch Gas Lighted Buoys

BURN CONTINUOUSLY

FROM 80 TO 365 DAYS AND NIGHTS WITHOUT ATTENTION AND CAN BE SEEN AT A DISTANCE OF SIX MILES.

Brilliant & Steady Illumination. Economical & Reliable in Operation.

Adopted by the English, German, French, Russian and United States Light House Departments for Channel and Harbor Lighting; over 1800 gas buoys and gas beacons in service.

Controlled by the

SAFETY CAR HEATING & LIGHTING COMPANY

160 Broadway, NEW YORK CITY.

Milwaukee Dry Dock Company

MILWAUKEE WISCONSIN

SHIP REPAIRS

OF ALL KINDS

We have two ship yards offering every facility for the repair of both steel and wooden vessels. South Yard Dock is 450 ft. long on keel blocks; 460 ft. over all; 60 ft. width of gate and 16 ft. over sill. West Yard Dock is 312 ft. on keel blocks; 45 ft. width of gate and 12 ft. over sill. Rudder pit in each dock. Electric lights for night work.

MAIN OFFICE AT SOUTH YARD

Foot of Washington Street

Telephone Main 3

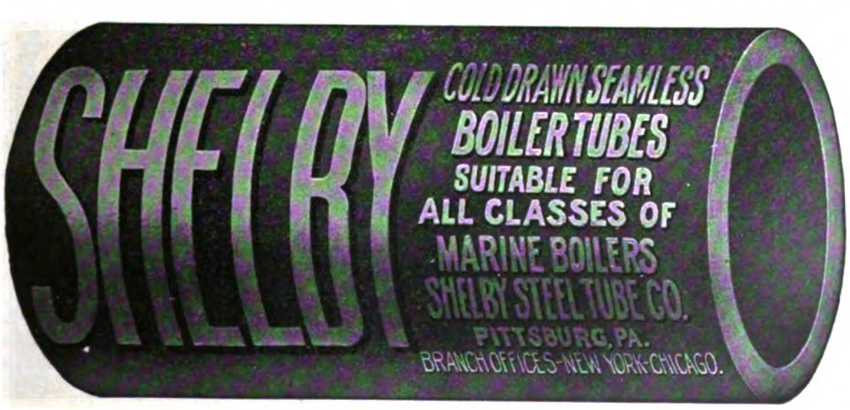
The Buffalo Dry Dock Company

BUFFALO NEW YORK

Operating four Docks, Sixty-Ton Shear Legs, and in every way equipped with modern plant for the building and economical repairs of **STEEL AND WOODEN SHIPS.**

EDWARD SMITH, President ADAM STEEL, Superintendent
WILLIAM KNIGHT, Ass't Sec'y and Treas.

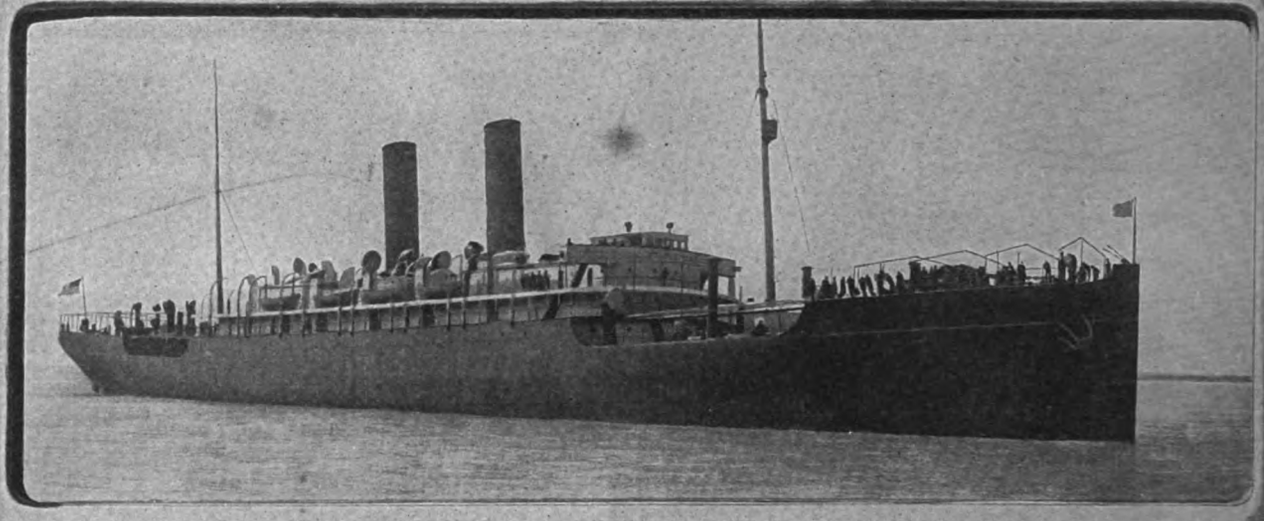
Office Telephone, 515 Seneca. President's Office Telephone, 2329 Seneca. President's Residence Telephone, 209 Bryant. Asst. Secy's Telephone, 324 North. Superintendent's Telephone, 2294 Howard.



Generated on 2024-08-27 20:09 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

OUR SHIPYARD

WITH ITS ACCOMPANYING DRY DOCKS AND WORKS, WAS CAREFULLY DESIGNED, EQUIPPED AND COMPLETED FOR THE



CONSTRUCTION AND REPAIRING IN EVERY DETAIL OF

BATTLE SHIPS · ARMORED CRUISERS · PROTECTED CRUISERS · GUN BOATS · TORPEDO BOATS · TORPEDO BOAT DESTROYERS · SUBMARINE BOATS · OCEAN LINERS · PASSENGER STEAMERS · FREIGHT CARRIERS · ETC · ETC ·

NEWPORT NEWS SHIPBUILDING & DRY DOCK CO.
1 BROADWAY NEW YORK — NEWPORT NEWS, VA.

Generated on 2024-08-27 20:20 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

G

Lighter Rescue,
SOO.

Lighter T. F. Newman,
AMHERSTBURG.

Lighter Active,
(McMyler remodeled, using clam shell bucket.)
PORT HURON.

Lighter J. B. Noyes and Str. Saginaw,
BUFFALO.

There ought to be a
U.S. AUTOMATIC INJECTOR
In Every Boiler Room.

It is the one perfect injector for every type of steam boiler. It is almost as indispensable for the perfect operation of a boiler as the water which it feeds.

It brings satisfaction to every engineer because it brings complete freedom from injector troubles. Its simple and s rong construction insures freedom from repair bills, makes it easy to keep clean, and is the secret of its well-known reliability. The U. S. Automatic Injecto r starts at l wer steam pressure and works to higher than any other; can be used as lifting or non lifting injector, and its range and capacity are *guaranteed* by a certificate accompanying each Demand the genuine "U. S." Take no substitute.

Some interesting facts about boilers and their care, with a few words about injectors, are contained in our famous "Engineer's Red Book." Sent free to all who write. Let us hear from you.

American Injector Company,
Detroit, U. S. A.

Woodhouse Special Dredge

For Steam Shovels, Cranes, Dredges, Slings.

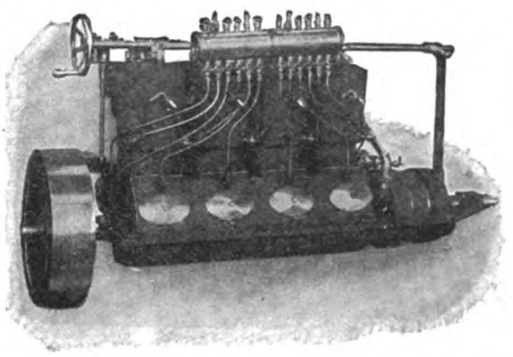
POSITIVELY THE BEST ON THE MARKET

Write for testimonial and prices.

We also manufacture chain for Ship Cables

Woodhouse Chain Works
TRENTON, N. J.

TRUSCOTT
THE DEPENDABLE MARINE MOTOR



Made to withstand the most severe and continuous service. A practical design characterized by the accessibility, compactness and simple ignition, gas producing and oiling features. Perfect control.

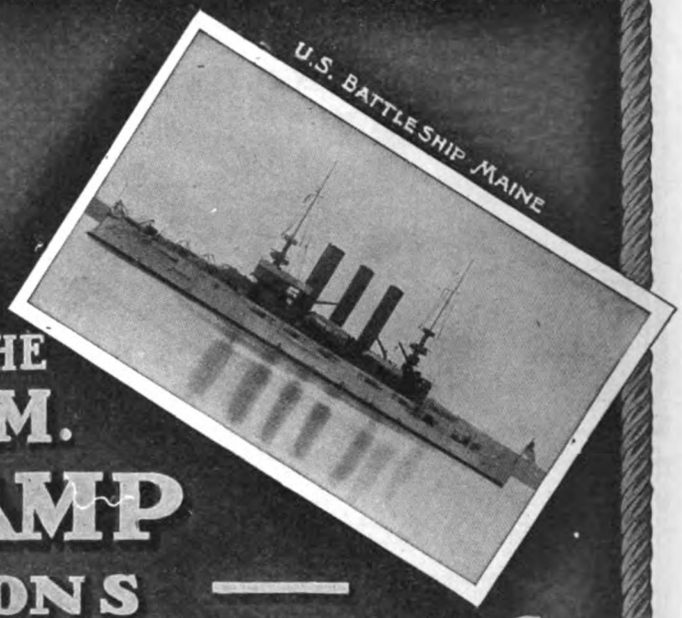
Four cycle type two and four cylinders, from 8 to 65 H. P. Smaller sizes of the two cycle type.

Catalogue and copy of The Launch for the asking.

Department 46.

Truscott Boat Mfg. Co.
ST. JOSEPH, MICHIGAN.

Generated on 2024-08-27 20:11 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

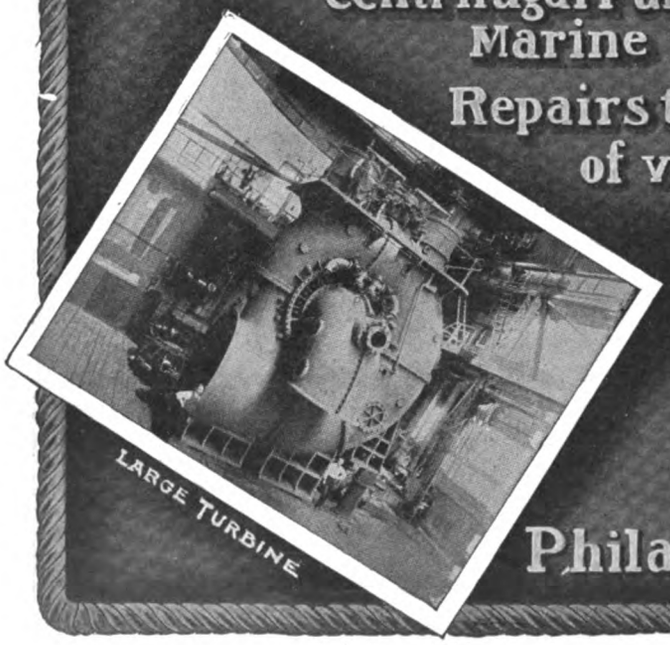


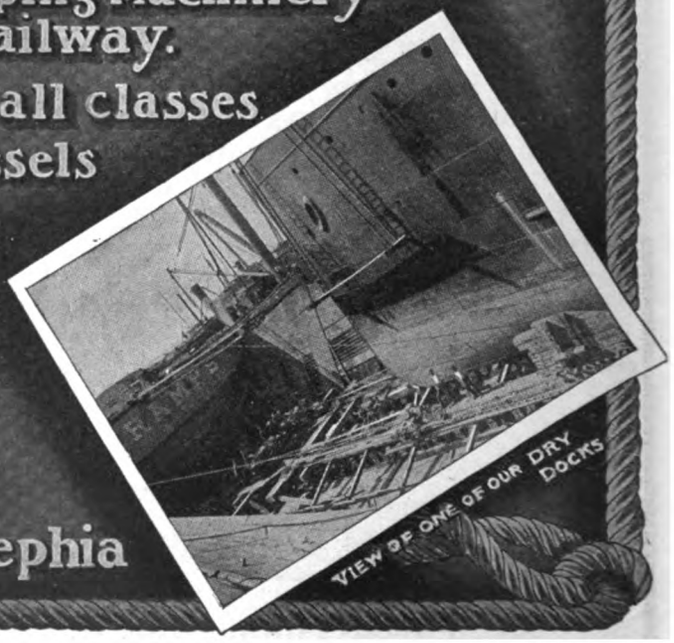
THE
WM.
CRAMP
& SONS
SHIP & ENGINE BUILDING Co.
ESTABLISHED 1830

I.P. MORRIS COMPANY
(ESTABLISHED 1829)

KENSINGTON SHIPYARD Co

WARSHIPS AND MERCHANT STEAMERS
Pumping, Blowing and Hoisting Engines, Dry Docks
Vertical and Horizontal Turbines
Centrifugal Pumping Machinery
Marine Railway.
Repairs to all classes
of vessels





Philadephia

Generated on 2024-08-27 20:26 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

CLEAN BOILERS

Dearborn Water Treatment made to suit the case. Takes off the scale, keeps it off, stops corrosion and foaming. Send gallon of water for analysis.

DEARBORN DRUG & CHEMICAL WORKS

G. R. CARR,
Mgr. Marine Dept.

16 BRANCH OFFICES IN THE U. S.

227-234 Postal Telegraph Bldg., CHICAGO.

"Steam Turbines"—

An important reference work on scientific Steam Turbine construction with an appendix on Gas Turbines, and the future of Heat Engines. Contains 435 pages 6 x 9 inches, 241 cuts and 3 lithograph tables. Bound in heavy cloth. Price $4.50.

By DR. A. STODOLA
ZURICH

Order from
MARINE REVIEW
CLEVELAND

Translated by
DR. LOUIS C. LOEWENSTEIN
Lehigh University

THE STANLEY B. SMITH COAL AND DOCK CO.,
TOLEDO HARBOR, TOLEDO, OHIO.

1,800 Feet of Dock. 6 McMyler Derricks. Capacity 3,000 Tons Daily.

Fuel Lighters.—"KANAWHA." —"PENNSYLVANIA." —"HOCKING."

Docks.—PENNSYLVANIA R. R. —HOCKING VALLEY R. R. —TOLEDO AND OHIO CENTRAL R. R.

SMITH'S COAL DOCK, Detroit River, DETROIT, MICH.
12 Pockets. Platform. Low Dock.
Operated by STANLEY B. SMITH & CO.

MARINE SUPPLY COMPANY——STORE AND ICE HOUSE ON DOCK.

PITTSBURG COAL COMPANY

GENERAL OFFICE, LAKE DEPARTMENT, PERRY-PAYNE BUILDING, CLEVELAND, OHIO

Steamboat Fueling Facilities at Various Points on the Great Lakes

CLEVELAND HARBOR { 4 Car Dumpers. 3 Lighters. } FAIRPORT HARBOR { 1 Car Dumper. 1 Lighter. } ERIE HARBOR { 1 Car Dumper. Fuel Pockets. }

ASHTABULA HARBOR { 1 Car Dumper. 1 Lighter. } DETROIT RIVER BRANCH { Docks and Pockets at Sandwich and Amherstburg. }

SAULT RIVER BRANCHES { Dock and Pockets at Detour. Dock and Pockets at Sault Ste. Marie. (The Port Royal Dock Co.) }

WE FURNISH ONLY THE BEST GRADE OF

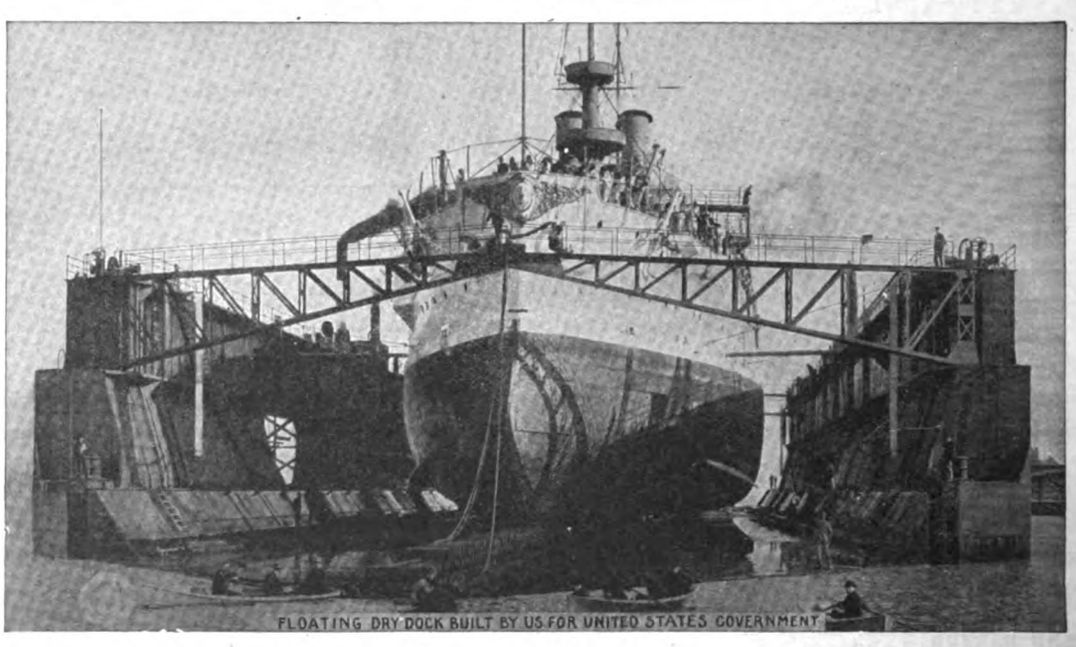
PITTSBURG AND YOUGHIOGHENY COAL

Generated on 2024-08-27 20:10 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

MARYLAND STEEL COMPANY

BUILDERS OF STEEL STEAMSHIPS, TOW BOATS, SAILING VESSELS, BARGES AND STEAM CRAFT OF EVERY DESCRIPTION

STEEL FLOATING DRY DOCKS CAPABLE OF DOCKING THE LARGEST VESSELS



FLOATING DRY DOCK BUILT BY US FOR UNITED STATES GOVERNMENT

SPARROW'S POINT, MARYLAND.

E. KLEIN

Generated on 2024-08-27 20:17 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

Digitized by Google

Original from NEW YORK PUBLIC LIBRARY

THE NICLAUSSE BOILER.

The largest merchantmen in the world, the S. S. Minnesota and Dakota, of 33,000 tons and 11,000 H. P. each, are equipped with **Niclausse Boilers.**

641,000 HORSE POWER IN THE NAVIES OF ELEVEN NATIONS.

THE NEW JAPANESE CRUISERS, KATORI AND KASHIMA, OF 16,000 H. P. EACH, AND IN THE UNITED STATES NAVY THE ARMORED CRUISERS PENNSYLVANIA AND COLORADO, 23,000 H. P. EACH, AND THE BATTLESHIPS GEORGIA AND VIRGINIA, 19,000 H. P. EACH, WILL BE FITTED WITH THESE BOILERS.

THE ONLY WATER-TUBE BOILER SUCCESSFULLY USED AND PROVED IN LARGE SHIPS.

Requires no space at sides or rear—cleaned from the front.
Employs no tube-caps—tubes can readily be withdrawn without mutilation.
FORGED STEEL THROUGHOUT.

THE STIRLING COMPANY, General Offices, Trinity Building, NEW YORK.

THE ROBERTS
SAFETY WATER-TUBE
BOILER CO.

Manufacturers of High Grade

Marine Water Tube Boilers

Generators of the Highest Quality of Steam

NEARLY 1500 IN USE

Send for circulars and stock sheet

MAIN OFFICE
39 Cortlandt St. New York City
Phone 599 Cortlandt

Works: Red Bank, N. J.
Phone, 49 Red Bank

Cable Address
"Bruniva"

LUNKENHEIMER REGRINDING VALVES

THE EMBODIMENT OF PERFECTION.

SELF CONTAINED.

NO EXTRA PARTS REQUIRED TO REPAIR, THEM WHEN WORN. A FEW MINUTES SPENT IN REGRINDING AND THEY ARE AS GOOD AS NEW.

If your local dealer cannot furnish them notify us

THE LUNKENHEIMER CO.

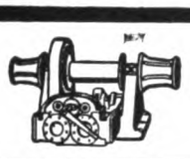
Largest Manufacturers of Engineering Specialties in the World.

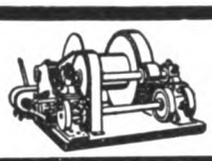
Main Offices and Works **CINCINNATI, OHIO, U. S. A.**

Branches: New York, 26 Cortlandt St.
London, 35 Great Dover St.

We also manufacture a complete line of Iron and Brass Valves, Oil and Grease Cups, Whistles, Injectors, Water Columns, Lubricators, Etc.

I M. R.





GASOLENE MARINE ENGINES
Suitable for all Boats from 3½ to 200 H.P.
Over 100 in successful use.
Also the well known and always reliable Wootters Gas or Gasolene Stationary Engines.

HOISTING ENGINES
Of all kinds and sizes, and for all purposes, especially for ship use.
Docking and Hauling Engines and Wire Rope Windlasses.

AUTOMATIC TOWING MACHINES
Somewhat the cheapest, and altogether the best. Positively guaranteed.
Automatic Fog Whistle Machines
Steam Steering Engines.

FOR THESE AND OTHER WELL KNOWN SPECIALTIES ADDRESS ALL INQUIRIES TO.

THE CHASE MACHINE CO. Engineers and Machinists, CLEVELAND, OHIO.

Generated on 2024-08-27 20:11 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

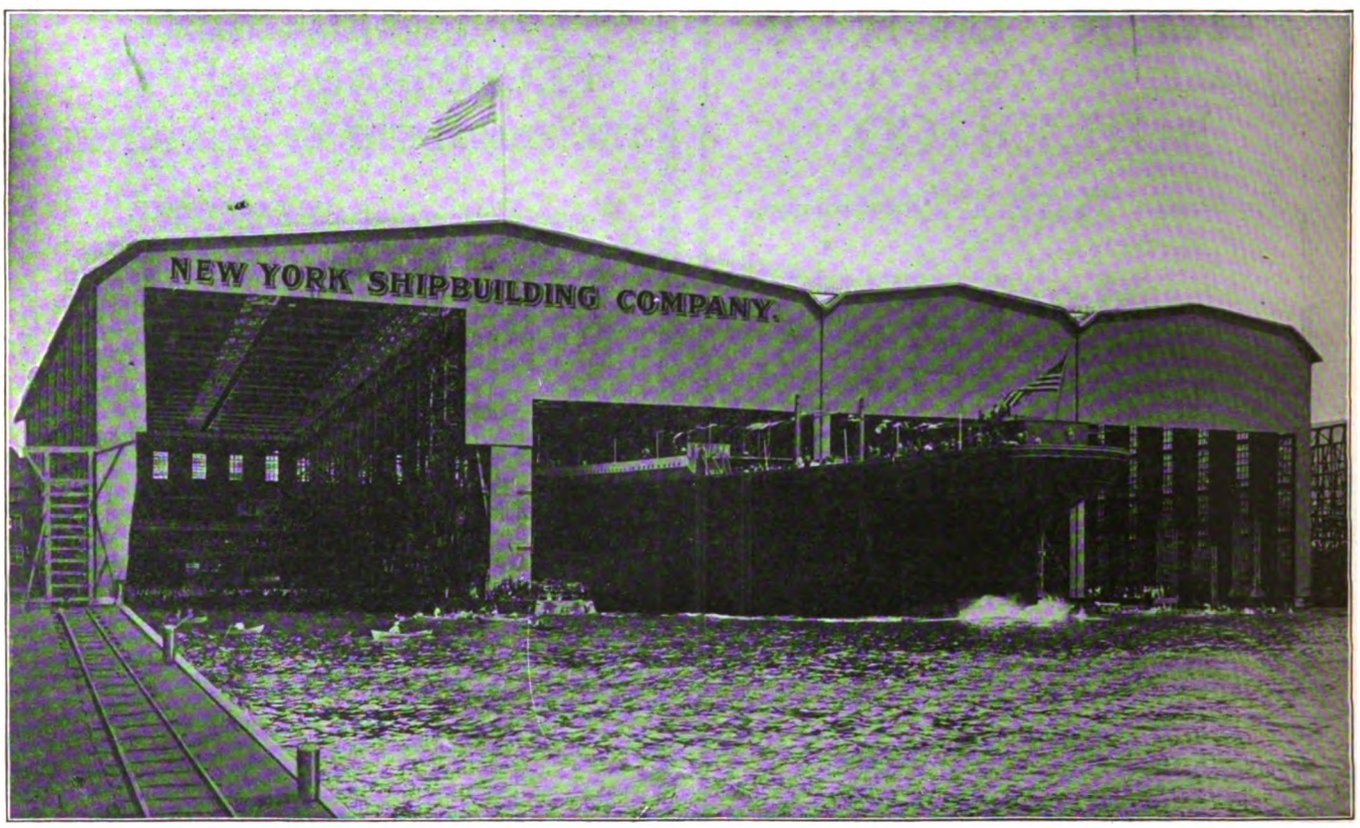
New York Shipbuilding Company

Main office and works, Camden, N. J., New York office No. 1 Broadway

Builders of

SHIPS — ENGINES — BOILERS

HEAVY MACHINERY



Launch of "Mongolia," Pacific Mail S. S. Co., July 25, 1903.
615 feet long, 65 feet beam, 51 feet deep.

Best Facilities for Repair Work

Pneumatic and Electric Tools;
ample wharfage accomodation.

100 ton crane.

Repairs done under shelter.

Generated on 2024-08-27 20:10 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

THE ELEMENTS OF NAVIGATION

A short and complete explanation of the standard methods of finding the position of a ship at sea and the course to be steered

Designed for the instruction of beginners

BY

W. J. HENDERSON,

Illustrated.

The need of a short, simple, and yet comprehensive book on the art of navigating a ship has led the author to undertake the preparation of the present work. The aim of the book is to instruct the beginner, leading him step by step from the first operations to the perfection of the art as found in the Sumner method. The instructions have been made as terse as possible, and yet the author believes that clearness has not been sacrificed. Fundamental principles have been explained, but no attempt has been made to elucidate the higher mathematics on the subject. Students who have tried to learn navigation from books like Captain Lecky's inimitable "Wrinkles in Practical Navigation", which is addressed to navigators only, or from Bowditch's "American Navigator", which is only for mathematicians, will, it is hoped, appreciate this little book. The explanations of the uses of the tables and the "Nautical Almanac" are a new feature in a work of this kind.

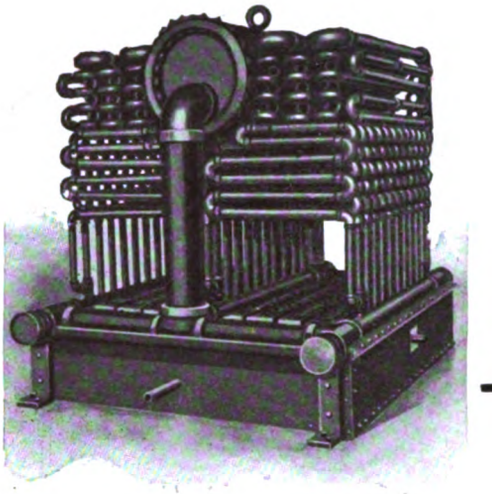
CONTENTS

Introduction
Variation
Deviation
How to find the Deviation
Leeway
The Log
The Lead-Line
Charts
Chart Sailing
Dead-Reckoning
Examples for Practice
Working a Traverse
Hove to
Shaping the Course
Navigation by Observation
Sextant Adjustments
Index Error
Hints on Taking Altitudes
Correcting the Altitude
The Chronometer
The Nautical Almanac
Apparent and Mean Time—The Equation
Latitude by Meridian Altitude
Latitude by Meridian Altitude of a Star
Latitude by Meridian Altitude of a Planet
Latitude by Meridian Altitude of the Moon
Meridian Altitude below the Pole
Latitude by Ex-Meridian Altitude of the Sun
Latitude by the Polestar
Compass Error by Azimuths
Longitude by Chronometer (or Time) Sight
Remarks on Longitude
Longitude by Sunrise and Sunset Sights
Chronometer Sight of a Star
Sumner's Method
Example of Sumner's Method with the Sun
Example of Sumner Lines with Two Stars
Great-Circle Sailing
Distance and Danger Angles
Allowance for Tides
Keeping the Log
Rating a Chronometer
Care of a Chronometer
Hints on Conducting Voyages

Examples for Practice:
Dead-Reckoning
Shaping Course by Mercator's Sailing
Latitude by Meridian Altitude of Sun
Latitude by Meridian Altitude of Star
Latitude by Meridian Altitude Below the Pole
Latitude by Ex-Meridian Altitudes
Latitude by the Polestar
Longitude by Chronometer Sight

PRICE $1.00

The Marine Review Cleveland



CAPACITY of production, durability and fuel economy are the three distinguishing points of superiority which predominate

DEARING WATER-TUBE BOILERS

For further information

Dearing Water-Tube Boiler Co.

Dept. C. DETROIT, MICH.

NINETEENTH ENLARGED EDITION; OVER 1,400 PAGES.

THE SHIPPING WORLD 1905 YEAR BOOK

EDITED BY MAJOR JONES AND A STAFF OF EXPERTS.

The Work Embraces
I.—Customs Tariffs of All Nations.
II.—A Port Directory of the World.
III.—Board of Trade Rules and Regulations.
IV.—Load Line Tables, Sailing Rules, Lights, Signals.
V.—Digest of Shipping Laws. Much other Useful Information

A LARGE MAP OF THE WORLD, especially designed by J. G. Bartholomew, F. R. G. S., F. R. S. E. is supplied in a pocket in the cover. Introduced by a RETROSPECTIVE VIEW of 1904.

Crown 8vo., cloth. Price, post free: In the United Kingdom, 5s; foreign countries, 6s, except in the United States where the Sole Agents for 1905 are

THE DERRY-COLLARD CO., 256-7 Broadway, NEW YORK.

THE TIMES.—"The information given is wide in scope, and varied in matter, dealing with almost every subject of interest connected with trade, commerce, and navigation. About one-third of the volume is devoted to the tariffs of all nations, which are given in full.
DAILY TELEGRAPH.—"A more comprehensive handbook in its special line for the merchant's desk there could scarcely be."
NEW YORK TRIBUNE.—"This compact book of upwards of twelve hundred pages, published by 'The Shipping World,' of London, contains an immense amount of information of value to the mariner and shipper.
PALL MALL GAZETTE.—"'The Shipping World Year Book' would be very much missed if it failed to put in a regular appearance, but fortunately there is no danger of that. The comprehensive retrospect of shipping affairs deserves special attention, and will repay careful study.
GLASGOW HERALD.—"The book more than ever commands the confidence of those large mercantile classes who have been accustomed to consult its pages for world-wide information, and always with success."
NEWCASTLE CHRONICLE.—"Those who refer to it will find all matters appertaining to the business of the shipowner brought right up to date."
LIVERPOOL JOURNAL OF COMMERCE.—"Filled from cover to cover with information absolutely indispensable to all engaged in the over-sea commerce of this country."
TIMBER.—"There is not another book of its size in the world which contains so much information worth having."
SOUTH WALES DAILY NEWS.—"Major Jones, the capable editor, has anticipated the public attention now being devoted to tariffs, and those of all nations and of the Colonies have been included and revised up to the last hour of publication." 1628

THE SHIPPING WORLD OFFICES, Effingham House, Arundel-street, Strand, London, W. C.

Generated on 2024-08-27 20:08 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

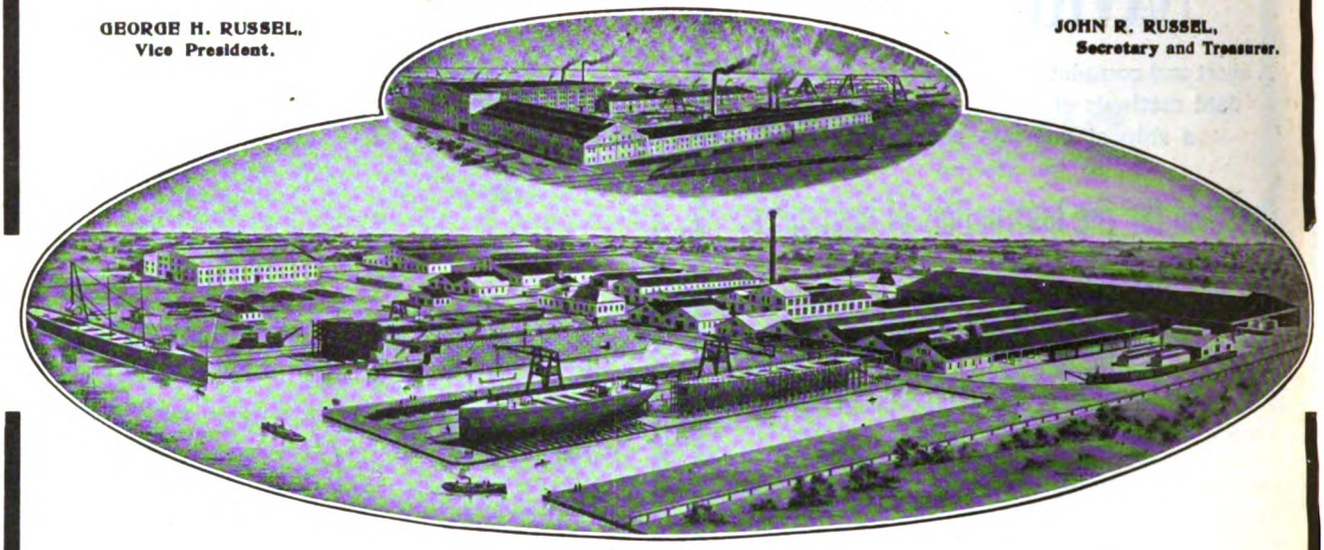
GREAT LAKES ENGINEERING WORKS

DETROIT, MICH.

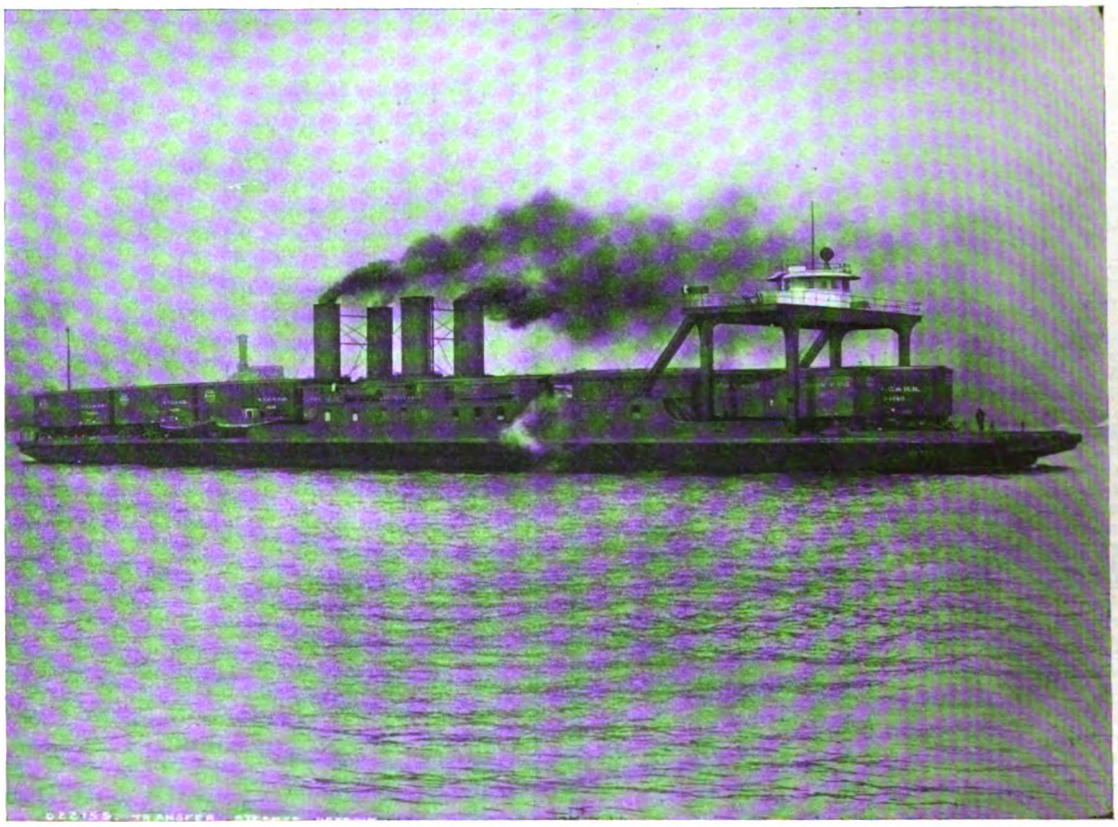
ANTONIO C. PESSANO, President and Gen. Mgr.

GEORGE H. RUSSEL, Vice President.

JOHN R. RUSSEL, Secretary and Treasurer.



Designers and Builders of Steel Freight and Passenger Ships. Marine Engines. = Hydraulic Dredges.



ICE CRUSHING CAR FERRY "DETROIT."

Marine Repairs a Specialty.

Generated on 2024-08-27 20:09 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

Digitized by Google

Original from NEW YORK PUBLIC LIBRARY

BELLEVILLE WATER-TUBE BOILERS

NOW IN USE (MARCH, 1905)

On Board Sea-going Vessels, NOT INCLUDING New Installations Building or Erecting.

French Navy	360,560 H. P.
English Royal Navy	966,300 "
Russian Imperial Navy	253,800 "
Japanese Imperial Navy	122,700 "
Austrian Imperial Navy	56,700 "
Italian Royal Navy	32,500 "
Chilian Navy	26,500 "
Argentine Navy	13,000 "
The "Messageries Maritimes" Company	87,600 "
Chemins de fer de l'Ouest: (The French Western Railway Co.) Steamships plying between Dieppe and Newhaven	18,500 "
Compagnie Generale Transatlantique	1,500 "
Total Horse Power of Boilers in Use	1,939,660

Societé Anonyme des Etablissements Delaunay Belleville

CAPITAL: 6,000,000 FRANCS

Works and Dock Yards of the Ermitage at Saint-Denis (Seine), France.

Telegraphic Address: Belleville, Saint-Denis-Sur-Seine

Geo. L. McCurdy

169 Jackson Boulevard

CHICAGO ILLINOIS

INSURANCE

HULLS and CARGOES

DIRECT REPRESENTATIVE OF LEADING AMERICAN AND FOREIGN UNDERWRITERS

"A WORD FOR A SIZE."

The use of the Telegraphic Cipher Code incorporated in our monthly stock list lessens the chance of error, and enables the customer to go fully into details with no additional expense.

See monthly stock list.

THE
BOURNE-FULLER CO.
IRON STEEL
PIG IRON
COKE
Cleveland, Ohio.

ASHTON

Cam Lever Pop Safety Valves and Non-Corrosive Steam Gauges.

give highest efficiency and durability. Specify them and get the best.

The Ashton Valve Co.

Boston New York Chicago

U. S. A.

Generated on 2024-08-27 20:10 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

Buyers' Directory of the Marine Trade

For a more complete classification than that represented by advertisers in the Marine Review, see the BLUE BOOK OF AMERICAN SHIPPING, marine and naval directory of the United States, published by The Marine Review, Cleveland.

See accompanying index of Advertisers for full addresses of concerns in this directory.

AIR COMPRESSORS, AIR HOISTS, ETC.
Great Lakes Engineering Works.....Detroit.
Mietz, Aug. .....New York.

AIR PORTS, DEAD LIGHTS, ETC.
Marine Mfg. & Supply Co.....New York.

AIR PUMPS AND APPLIANCES.
Fore River Ship & Engine Co..Quincy, Mass.
Great Lakes Engineering Works.....Detroit.

ANCHORS.
Bowers, L. M. & Co.....Binghamton, N. Y.

ANTI-FRICTION METALS.
Cramp, Wm. & Sons.....Philadelphia.

ARTIFICIAL DRAFT FOR BOILERS.
American Ship Building Co.....Cleveland.
Detroit Ship Building Co.....Detroit
Great Lakes Engineering Works.....Detroit
Sturtevant, B. F., Co.....Hyde Park, Mass.

ASH EJECTORS.
Great Lakes Engineering Works.....Detroit.

ATTORNEYS AND PROCTORS IN ADMIRALTY.
Gilchrist, Albert J.....Cleveland.
Goulder, Holding & Masten.....Cleveland.
Hoyt, Dustin & Kelley.....Cleveland.
Jenkins, Russell & Eichelberger....Cleveland.
Kremer, C. E.....Chicago.
MacDonald, Ray G.....Chicago.
Shaw, Warren, Cady & Oakes.....Detroit.
White, Johnson, McCaslin & Cannon Cleveland

BAROMETERS, MARINE GLASSES, ETC.
Ritchie, E. S. & Sons.....Brookline, Mass.

BELT CONVEYORS.
Link Belt Machinery Co.....Chicago.

BLOCKS, SHEAVES, ETC.
Boston & Lockport Block Co.....Boston, Mass.
Cleveland Block Co.....Cleveland.

BLOWERS.
Power Specialty Co.....Detroit.
Sturtevant, B. F. Co.....Hyde Park, Mass.

BOAT BUILDERS.
Drein, Thos. & Son.....Wilmington, Del.
Kahnweiler's Sons, David.....New York.
Lane & DeGroot....Long Island City, N. Y.
Marine Construction & D. D. Co.....
.....Mariner's Harbor, S. I., N. Y.
Truscott Boat Mfg. Co.....St. Joseph, Mich.
Willard, Chas. P. & Co. Winthrop Harbor, Ill.

BOILER CLEANING DEVICE.
Power Specialty Co.....Detroit.

BOILER COMPOUNDS.
Dearborn Drug & Chemical Works....Chicago.

BOILER MANUFACTURERS.
Almy Water Tube Boiler Co..Providence, R. I.
American Ship Building Co.....Cleveland.
Atlantic Works.....East Boston, Mass.
Chicago Ship Building Co.....Chicago.
Cramp, Wm. & Sons.....Philadelphia.
Dearing Water Tube Boiler Co.....Detroit.
Delauney, Belleville & Co...St. Denis, France.
Detroit Ship Building Co.....Detroit.
East End Boiler Works.....Detroit.
Fletcher, W. A. & Co.....Hoboken, N. J.
Fore River Shipbuilding Co.....Quincy, Mass.
Great Lakes Engineering Works.....Detroit.
Kingsford Foundry & Machine Works....
.....Oswego, N. Y.
Marine Iron Works.....Chicago.

BOILER MANUFACTURERS—Continued.
Maryland Steel Co.....Sparrows Point, Md.
Milwaukee Dry Dock Co.....Milwaukee.
Mosher Water Tube Boiler Co....New York.
Newport News Ship Building Co.....
.....Newport News, Va.
New York Shipbuilding Co.....Camden, N. J.
Northwestern Steam Boiler & Mfg. Co.....
.....Duluth, Minn.
Quintard Iron Works Co.....New York.
Roberts Safety Water Tube Boiler Co....
.....New York.
Stirling, The Co.....New York.
Superior Ship Building Co.....Superior, Wis.
Taylor Water Tube Boiler Co.....Detroit.

BOILER RIVETS.
Bourne-Fuller Co.....Cleveland.

BOILER STAYBOLTS, IRON OR STEEL, HOLLOW OR SOLID.
Falls Hollow Staybolt Co..Cuyahoga Falls, O.

BRASS AND BRONZE CASTINGS.
Cramp, Wm. & Sons.....Philadelphia.
Fore River Ship & Engine Co..Quincy, Mass.
Great Lakes Engineering Works.....Detroit.
Lunkenheimer Co.....Cincinnati.
Macbeth Iron Co.....Cleveland.

BRIDGES, BUILDERS OF.
Cowing, John P.....Cleveland.
Scherzer Rolling Lift Bridge Co.....Chicago.

BUCKETS, ORE AND COAL.
Brown Hoisting & Conveying Machine Co.
..... Cleveland.
McMyler Mfg. Co.....Cleveland.
Mayo & Bailey .....Chicago.

BULKHEAD DOORS, WATERTIGHT.
"Long Arm" System Co.....Cleveland.

CABIN AND CABINET FINISHING WOODS.
Martin-Barriss Co.....Cleveland.

CANVAS SPECIALTIES.
Baker & Co., H. H.....Buffalo.
Bunker, E. A. .....New York.
Upson-Walton Co.....Cleveland.

CAPSTANS.
American Ship Windlass Co..Providence, R. I.
Hyde Windlass Co.....Bath, Me.
Marine Mfg. & Supply Co.....New York.

CEMENT, IRON FOR REPAIRING LEAKS.
Smooth-On Mfg. Co.....Jersey City, N. J.

CHAINS.
Woodhouse Chain Works.....Trenton, N. J.

CHAIN CONVEYORS, HOISTS.
Brown Hoisting Machinery Co. (Inc.)....
..... Cleveland.
General Electric Co.....Schenectady, N. Y.

CHAIN HOISTS.
Boston & Lockport Block Co....Boston, Mass.

CHARTS.
Penton Publishing Co.....Cleveland.
Potter, J. D.....London.

CLOCKS (Marine and Ship's Bell) AND CHRONOMETERS.
Ashton Valve Co.....Boston.
Ritchie, E. S. & Sons.....Brookline, Mass.

COAL PRODUCERS AND SHIPPERS.
Hanna, M. A. & Co.....Cleveland.
Ironville Dock & Coal Co.....Toledo, O.
Pickands, Mather & Co.....Cleveland.
Pittsburg Coal Co.....Cleveland.

COAL AND ORE HANDLING MACHINERY.
Brown Hoisting Machinery Co. (Inc.)....
..... Cleveland.
Link Belt Machinery Co.....Chicago.
McMyler Mfg. Co.....Cleveland.

COMPASSES.
Ritchie, E. S. & Sons.....Brookline, Mass.

CONDENSERS.
Great Lakes Engineering Works.....Detroit.
Thropp & Sons Co., John E...Trenton, N. J.

CONTRACTORS FOR PUBLIC WORKS.
Breymann & Bros., G. H.....Toledo.
Buffalo Dredging Co.....Buffalo.
Dunbar & Sullivan Dredging Co.....Buffalo.
Fitz-Simons & Connell Co.....Chicago.
Great Lakes Dredge & Dock Co.....Chicago.
Hickler Bros.....Sault Ste. Marie, Mich.
Lake Superior Contracting & Dredging Co.,
..... Duluth, Minn.
Smith Co., L. P. & J. A.....Cleveland.
Starke Dredge & Dock Co., C. H..Milwaukee.
Sullivan, M.....Detroit.

CORDAGE.
Baker & Co., H. H.....Buffalo.
Upson-Walton Co.....Cleveland.

CORK JACKETS AND RINGS.
Armstrong Cork Co.....Pittsburg, Pa.
Kahnweiler's Sons, D.....New York.

CRANES, TRAVELING.
Brown Hoisting Machinery Co.....Cleveland.
McMyler Mfg. Co.....Cleveland.

DIVING APPARATUS.
Morse, A. J. & Son.....Boston.
Schrader's Son, Inc., A..... New York.

DRAFT, MECHANICAL.
Sturtevant Co., B. F.....Hyde Park, Mass.

DREDGING CONTRACTORS.
Breymann & Bros., G. H.....Toledo.
Buffalo Dredging Co.....Buffalo.
Dunbar & Sullivan Dredging Co.....Buffalo.
Fitz-Simons & Connell Co.....Chicago.
Great Lakes Dredge & Dock Co.....Chicago.
Hickler Bros.....Sault Ste. Marie, Mich.
Lake Superior Contracting & Dredging Co.
..... Duluth, Minn.
Smith Co., L. P. & J. A.....Cleveland.
Starke Dredge & Dock Co., C. H..Milwaukee.
Sullivan, M.....Detroit.

DREDGING MACHINERY.
Quintard Iron Works Co.....New York.

DRYING APPARATUS.
Sturtevant, B. F. Co.....Hyde Park, Mass.

DRY DOCKS.
American Ship Building Co.....Cleveland.
Atlantic Works.....East Boston, Mass.
Buffalo Dry Dock Co.....Buffalo.
Chicago Ship Building Co.....Chicago.
Craig Ship Building Co.....Toledo, O.
Cramp, Wm. & Sons.....Philadelphia.
Detroit Ship Building Co.....Detroit.
Great Lakes Engineering Works.....Detroit.
Lockwood Mfg. Co.....East Boston, Mass.
Milwaukee Dry Dock Co.....Milwaukee.
Newport News Ship Building Co.....
.....Newport News, Va.
Shipowners Dry Dock Co.....Chicago.
Superior Ship Building Co....Superior, Wis.

DYNAMOS.
General Electric Co.....Schenectady, N. Y.
Mietz, Aug.....New York.
Sturtevant, B. F. & Co.....Hyde Park, Mass.
Thropp & Sons, John E.....Trenton, N. J.

ECONOMIZERS, FUEL.
Sturtevant Co., B. F.....Hyde Park, Mass.

ELECTRIC HOISTS AND CRANES.
General Electric Co.....Schenectady, N. Y.

Generated on 2024-08-27 20:40 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

WANTED and FOR SALE Department.

PROPOSALS.

U. S. ENGINEER OFFICE, Grand Rapids, Mich., August 7, 1905. Sealed proposals for extension of West Breakwater at Petoskey, Mich., will be receivd here until 3 p. m., September 6, 1905, and then publicly opened. Information furnished on application. M. B. ADAMS, Col. Engrs. (Aug. 31.)

PROPOSALS for Dredging Pumps, etc., U. S. Engineer Office, Custom House, St. Louis, Mo., Aug. 9, 1905. Sealed proposals, in triplicate, for furnishing centrifugal dredging pumps, pillow-blocks, tie-beams, pipe lines and flexible joints will be received here until 12 noon, Sept. 8, 1905, and then publicly opened. Information furnished on application. THOS. L. CASEY, Major, Engrs. Aug 31

U. S. ENGINEER OFFICE, Duluth, Minn., Aug. 19, 1905. Sealed proposals for U. S. Engineer Building at Duluth, Minn., will be received here until noon, Sept. 18, 1905, and then publicly opened. Information on application. CHAS. L. POTTER, Major Engrs. Sept. 14.

U. S. ENGINEER OFFICE, 57 Park St., Grand Rapids, Mich., Aug. 21, 1905. Sealed proposals for repair of Pier and Revetments at Charlevoix, Mich., will be received here until 3 p.m., Sept. 20, 1905, and then publicly opened. Information furnished on application. M. B. ADAMS, Col. Engrs. Sept. 14.

SEALED PROPOSALS will be received at the office of the Light-House Board, Washington, D. C., until 2 o'clock p. m., Sept. 14, 1905, and then opened, for furnishing the materials and labor of all kinds necessary for the construction and delivery of the twin-screw steel steam light-house tender Sunflower, in accordance with specifications, copies of which, with blank proposals and other information, may be had upon application to REAR ADMIRAL B. P. LAMBERTON, U. S. N., Chairman.

FOR SALE.

Steam Capstans.

Two steam capstans in perfect condition for sale. Installed but never used. Address Box 81, Marine Review, Cleveland.

Grab Bucket.

FOR SALE.—One "Hulett" two-rope clam-shell bucket. Slightly used. Address Box 82, Marine Review, Cleveland.

FOR SALE.

Engine.

FOR SALE.— 25-H. P. Globe engine, with shaft propeller and stern bearing; all good as new; now in auxiliary schooner yacht Ednis; a larger engine to be installed in October; can be seen any day in yacht, between 8 a. m. and 5 p. m., at Marine Basin, Bath Beach, Brooklyn, or address CAPTAIN CARL MULLER, same place.

For Sale.

Fore and aft Compound Marine Engine, size 6 x 12 x 6, and in perfect condition. Built by the Marine Iron Works, Chicago. Inquire of H. B. Larsen, Manistee, Mich.

Marine Boiler.

For Sale.—One 50 H. P. Scotch Marine Boiler, 10 ft. long, 78 in. diameter, 160 lbs. steam pressure. Manufactured by Ritter & Co., Buffalo, N. Y. In first-class shape. For particulars, write The Detroit Stove Works, Detroit, Mich. t. f.

FOR SALE

Fast Steam Yacht "Novia"

Speed 22 miles per hour. (Formerly I. C. U. of Detroit.) Hull 57 ft long by 8 ft. beam. Dearing Boiler 300 lbs pressure. Triple Expansion Engine. Turns a 34" Four Bladed Wheel 625 revolutions per minute. Everything in first class condition. Price $3000 cash.

THE HARDY & DISCHINGER CO.
Toledo, Ohio.

For Sale.

Charter or trade for larger boat after Aug. 25, the freight and passenger Str. Hazel. Length 90 ft., beam 18 ft. Inquire of R. B. RICE, Grand Haven, Mich. 8-31

FOR SALE.

Marine Engine.

FOR SALE.—One fore and aft compound marine engine. Size 27 and 50 by 40. Address MONTAGUE IRON WORKS, Montague, Mich.

For Sale, Cheap.

Second-hand boom-chains, all sizes, one thousand feet 6-in. towline, all in good condition. One new Snelling steerer. BAYFIELD TOWING CO., Bayfield, Wis. 8-24

FOR SALE $3500.00.

The Steamer Gordon Campbell.

Burned on spar-deck, forward only—easy to cut down to lumber barge, to carry million feet. Machinery, boilers and hull untouched and in good condition. Boat in dry dock and thoroughly overhauled last summer. Can be seen in Chicago. Address Room 613, 59 Dearborn St., Chicago. t f

WANTED.

Man Wanted.

WANTED.—An experienced man to superintend construction and repairs of steel vessels. Give two references. Address A. P., care Marine Review, Cleveland.

Wanted.

For freight service only, a boat 125 to 135 ft. long, 25 ft. beam, 5 to 6 ft. draught and speed ten miles per hour. Address C. J. Smith, Gen. Mgr. R. & O. Nav. Co., Montreal, Can.

Wanted.

Two barges, flat deck, about 120 x 30 feet. Address B. B. Jefferson, 30 N. Third St., Memphis, Tenn.

FOR SALE

The D. Robeson SHIP CHANDLERY BUSINESS
at PORT HURON, MICH.

Established 36 years. Does a large business in the sale of Cordage, Duck, Wire Rope, Blocks, Paints, Oils, Varnishes, Brushes; Roofing, Rubber Hose, Building Paper. Manufacturer of Sails, Flags, Tents and Awnings. Building is 40 x 70, two story brick, located close to boat landing. Ill health reason for disposing of real estate and business. For further particulars, write to

SCHOOLCRAFT & CO., Port Huron, Mich.

For Sale

Launch Factory and stock of engines and high grade hulls, finished and unfinished. One of the best factories in the country, with new machinery, good buildings, a fine testing tank, and excellent facilities for launching and shipping. Located above high water on the Ohio River. Frontage of ground, 250 ft., depth, 800 ft. Also a stock of fine launches 18 to 30 ft. long, lumber and other material. This property must be sold. Stockholders are engaged in other business and can not give it attention. With proper management and attention a fine business can be established. Write for particulars, or come and see the plant.

Neptune Launch & Mfg. Co.
Evansville, Indiana.

Generated on 2024-08-27 20:12 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

Buyers' Directory of the Marine Trade.—*Continued.*

ELECTRIC LIGHT AND POWER PLANTS.

General Electric Co.....Schenectady, N. Y.
Mietz, Aug.....New York.
Sturtevant, B. F. & Co.....Hyde Park, Mass.
Thropp & Sons, John E.....Trenton, N. J.

ENGINE BUILDERS, MARINE.

American Ship Building Co.....Cleveland.
Atlantic Works.....East Boston, Mass.
Chicago Ship Building Co.....Chicago.
Chase Machine Co.....Cleveland.
Cramp, Wm. & Sons.....Philadelphia.
Craig Ship Building Co.....Toledo, O.
Detroit Ship Building Co.....Detroit.
Fletcher, W. & A. Co.....Hoboken, N. J.
Fore River Shipbuilding Co....Quincy, Mass.
Great Lakes Engineering Works..Detroit, Mich.
Hall Bros.....Philadelphia.
Lockwood Mfg. Co.....East Boston, Mass.
Marine Iron Works.....Chicago.
Maryland Steel Co.....Sparrows Point, Md.
Mietz, Aug.....New York.
Milwaukee Dry Dock Co.....Milwaukee.
Mosher, Chas. D.....New York.
Moulton Steering Engine Co.....New York.
Newport News Ship Building Co.....
.....Newport News, Va.
New York Shipbuilding Co....Camden, N. J.
Northwestern Steam Boiler & Mfg. Co...
..... Duluth, Mich.
Quintard Iron Works Co.....New York.
Roach's Ship Yard.....Chester, Pa.
Sheriffs Mfg. Co.....Milwaukee.
Superior Ship Building Co....Superior, Wis.
Thropp, J. E. & Sons Co.....Trenton, N. J.
Trout, H. G.....Buffalo.

ENGINE BUILDERS, STEAM.

Sturtevant Co, B. F.....Hyde Park, Mass.

ENGINE ROOM TELEGRAPH, CALL BELLS, ETC.

Cory, Chas. & Son.....New York.
Marine Mfg. Supply Co.....New York.

ENGINE TESTING.

Parsons, Ralph M.....Chicago.

ENGINEERING SPECIALTIES AND SUPPLIES.

Crane Co.....Chicago.
Kieley & Mueller.....New York.
Lunkenheimer Co.....Cincinnati.
Northwestern Steam Boiler & Mfg. Co...
..... Duluth, Minn.

ENGINEERS, MARINE, MECHANICAL, CONSULTING.

Hynd, Alexander.....Cleveland.
Hunt, Robt. W. & Co.....Chicago.
Kidd, Joseph.....Duluth, Minn.
Mosher, Chas. D.....New York.
Nacey, James.....Cleveland.
Roelker, H. B.....New York.
Wood, W. J.....Chicago.

FANS FOR VENTILATION, EXHAUST, ETC.

Sturtevant, B. F. Co.....Hyde Park, Mass.

FEED WATER PURIFIERS AND HEATERS.

Greacen-Derby Engineering Co.....
.....Perth Amboy, N. J.
Ross Valve Co.....Troy, N. Y.

FIRE EXTINGUISHERS.

Safety Fire Extinguisher Co.....New York.

FIXTURES FOR LAMPS, OIL OR ELECTRIC.

General Electric Co.....Schenectady, N. Y.

FORGES.

Sturtevant, B. F. Co.....Boston.
Sutton Co., C. E.....Toledo, O.

FORGINGS FOR CRANK, PROPELLER OR THRUST SHAFTS, ETC.

Cleveland City Forge & Iron Co...Cleveland.
Fore River Shipbuilding Co.....Quincy, Mass.
Macbeth Iron Co.....Cleveland.

FLUE WELDING.

Fix's, S. Sons.....Cleveland.

FUEL ECONOMIZERS.

Sturtevant Co., B. F.....Hyde Park, Mass.

FUELING COMPANIES AND COAL DEALERS.

Hanna, M. A. & Co.....Cleveland.
Ironville Dock & Coal Co.....Toledo, O.
Parker Bros. Co., Ltd.....Detroit.
Pickands, Mather & Co.....Cleveland.
Pittsburg Coal Co.....Cleveland.
Smith, Stanley B., & Co.....Detroit.
Smith Coal & Dock Co., Stanley B. Toledo, O.

FUELING PLANTS, BUILDERS OF

Link Belt Machinery Co.....Chicago.

FURNACES FOR BOILERS.

Continental Iron Works.....New York.

GAS BUOYS.

Safety Car Heating & Lighting Co..New York.

GAS AND GASOLINE ENGINES.

Chase Machine Co.....Cleveland.

GAUGES, STEAM AND VACUUM.

Ashton Valve Co.....Boston.
Lunkenheimer Co. .....Cincinnati.

GAUGES, WATER.

Bonner Co., Wm. T.....Boston.
Lunkenheimer Co. .....Cincinnati, O.

GENERATING SETS.

Sturtevant Co., B. F.....Hyde Park, Mass.
General Electric Co.....Schenectady, N. Y.

GRAPHITE.

Dixon Crucible Co., Joseph..Jersey City, N. J

GREASE EXTRACTORS.

Greacen-Derby Engineering Co.....
.....Perth Amboy, N. J.

HAMMERS, STEAM.

Chase Machine Co.....Cleveland.

HEATING APPARATUS.

Sturtevant, B. F. Co.....Hyde Park, Mass.
Sutton Co., C. E.....Toledo, O.

HOISTS FOR CARGO, ETC.

American Ship Building Co.....Cleveland.
Brown Hoisting Machinery Co. (Inc.)....
..... Cleveland.
Chase Machine Co.....Cleveland.
General Electric Co.....New York.
Georgian Bay Engineering Works.....
.....Midland, Ont.
Hyde Windlass Co.....Bath, Me.
McMyler Mfg. Co.....Cleveland.
Marine Iron Co.....Bay City.
Mietz, Aug. .....New York.

HOLLOW SHAFTINGS, IRON OR STEEL.

Falls Hollow Staybolt Co...Cuyahoga Falls, O.

HOLLOW STAYBOLT IRON.

Falls Hollow Staybolt Co...Cuyahoga Falls, O.

HYDRAULIC DREDGES.

Great Lakes Engineering Works.....Detroit.

HYDRAU. IC TOOLS.

Watson-Stillman Co., The.....New York.

ICE MACHINERY.

Great Lakes Engineering Works.....Detroit.
Roelker, H. B.....New York.

INDICATORS FOR STEAM ENGINES.

Ashton Valve Co.....Boston.

INJECTORS.

American Injector Co.....Detroit.
Crane Co. .....Chicago.
Jenkins Bros. .....New York.
Lunkenheimer Co.....Cincinnati.
Penberthy Injector Co.....Detroit, Mich.

INSURANCE, MARINE.

Elphicke, C. W. & Co.....Chicago.
Fleming & Co., E. J.....Chicago.
Gilchrist & Co., C. P.....Cleveland.
Hawgood & Co., W. A.....Cleveland.
Helm & Co., D. T.....Duluth.
Hutchinson & Co.....Cleveland.
McCarthy, T. R.....Montreal.
McCurdy, Geo. L.....Chicago.
Mitchell & Co.....Cleveland.
Parker Bros. Co., Ltd.....Detroit.
Peck, Chas. E. & W. F..New York & Chicago.
Prindiville & Co.....Chicago.
Richardson, W. C.....Cleveland.
Sullivan, D. & Co.....Chicago.

IRON CASTINGS.

Sutton Co., C. E.....Toledo, O.

IRON ORE AND PIG IRON.

Bourne-Fuller Co.....Cleveland, O.
Hanna, M. A. & Co.....Cleveland.
Pickands, Mather & Co.....Cleveland.

LAUNCHES—STEAM, NAPHTHA, ELECTRIC.

Marine Iron Works.....Chicago.
Truscott Boat Mfg. Co.....St. Joseph, Mich.

LIFE PRESERVERS, LIFE BOATS, BUOYS.

Armstrong, Cork Co.....Pittsburg.
Drein, Thos. & Son.....Wilmington, Del.
Gaynor, T. F .....New York.
Kahnweiler's Sons, D.....New York.
National Cork Co.....Brooklyn.

LIGHTS, SIDE AND SIGNAL.

Russell & Watson .....Buffalo.

LOGS.

Nicholson Ship Log Co.....Cleveland.
Walker & Sons, Thomas....Birmingham, Eng.
Also Ship Chandlers.

LUBRICATING GRAPHITE.

Dixon Crucible Co., Joseph..Jersey City, N. J.

LUBRICATORS.

Crane Co.....Chicago.
Lunkenheimer Co. .....Cincinnati.

LUMBER.

Martin-Barriss Co.....Cleveland.
Rayner, J. .....Chicago.

MACHINISTS.

Chase Machine Co.....Cleveland.
Hickler Bros.....Sault Ste. Marie, Mich.
Lockwood Mfg. Co.....East Boston, Mass.

MACHINE TOOLS (WOOD WORKING).

Atlantic Works, Inc.....Philadelphia.

MARINE RAILWAYS.

Hickler Bros.....Sault Ste. Marie, Mich.

MARINE RAILWAYS, BUILDERS OF.

Crandall & Son, H. I.....East Boston, Mass.

MATTRESSES, CUSHIONS, BEDDING.

Fogg, M. W.....New York.

MECHANICAL DRAFT FOR BOILERS.

American Ship Building Co.....Cleveland.
Detroit Ship Building Co.....Detroit.
Great Lakes Engineering Works.....Detroit.
Sturtevant, B. F. Co.....Hyde Park, Mass.

METALLIC PACKING.

Katzenstein, L. & Co.....New York.

MOTORS, GENERATORS—ELECTRIC.

General Electric Co.....Schenectady, N. Y.
Sturtevant, B. F. Co.....Hyde Park, Mass.

NAUTICAL INSTRUMENTS.

Ritchie, E. S., & Sons.....Brookline, Mass.

NAVAL ARCHITECTS.

Hynd, Alexander .....Cleveland.
Kidd, Joseph .....Duluth, Minn.
Mosher, Chas. D.....New York.
Nacey, James .....Cleveland.
Wood, W. J. .....Chicago.

OAKUM.

Stratford, Oakum Co.....Jersey City, N. J.

OIL ENGINES.

Mietz, Aug. .....New York.

OILS AND LUBRICANTS.

Dixon Crucible Co., Joseph..Jersey City, N. J.
Standard Oil Co.....Cleveland.

PACKING.

Crane Co. .....Chicago.
Jenkins Bros. .....New York.
Katzenstein, L. & Co.....New York.

PAINTS.

Baker, Howard H. & Co.....Buffalo.
Upson-Walton Co. .....Cleveland.

PATTERN SHOP MACHINERY.

Atlantic Works, Inc.....Philadelphia.

Generated on 2024-08-27 20:11 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

Books on Marine Engineering, or the Operation of Engines, and for Beginners in Engine Room.

AMERICAN MARINE ENGINEER—By Edwards..... $2 50

ARITHMETIC OF THE STEAM ENGINE—E. S. Gould.... 1 00

ELECTRIC LIGHTING—Atkinson..... 1 50

ELECTRIC LIGHTING FOR MARINE ENGINEERS; or How to light a ship by the electric light and how to keep the apparatus in order—S. F. Walker..... 2 00

ENGINEER'S EPITOME—N. J. Smith. A collection of figures, facts and formulæ for engineers..... 50

ENGINEER'S MANUAL OF LOCAL MARINE BOARD EXAMINATIONS—By Ainsley..... 5 00

ENGINE RUNNERS CATECHISM—By Grimshaw 2 00

ENGINES AND ENGINE RUNNING—Joshua Rose. For the use of those who desire to pass an examination to take charge of an engine or boiler; illustrated..... 2 50

ENGINE TESTS AND BOILER EFFICIENCIES—By J. Buchetti 3 00

EXAMINATION QUESTIONS AND ANSWERS—Emory Edwards. 900 examination questions and answers for young engineers and firemen who desire to obtain marine licenses.. 1 50

GAS ENGINES AND THEIR TROUBLES—Roberts and Durand. 1 50

GAS, GASOLINE AND OIL ENGINES—Gardner D. Hiscox.. 2 50

HAWKINS' AIDS TO ENGINEERS' EXAMINATIONS, with Questions and Answers 2 00

HAWKINS' SELF-HELP, Mechanical Drawing..... 2 00

HAWKINS' NEW CATECHISM OF ELECTRICITY..... 2 00

HAWKINS' MAXIMS AND INSTRUCTIONS FOR THE BOILER ROOM. Useful to the engineer, the fireman, to the steam user or owner, and to the student of steam engineering. 2 00

HAWKINS' HAND BOOK OF CALCULATIONS FOR ENGINEERS. Comprises elements of arithmetic, mensuration, geometry, mechanical philosophy, with explanations and help rules useful to an engineer..... 2 00

HAWKINS' NEW CATECHISM OF THE STEAM ENGINE.. 2 00

HAWKINS' INDICATOR CATECHISM. (A practical treatise.) 1 00

HOW TO RUN ENGINES AND BOILERS. Practical instruction for young engineers and steam users. E. P. Watson. New fifth edition. 1 00

INDICATOR PRACTICE—Hemenway..... 2 00

KEY TO ENGINEERING—Invaluable to engineers and firemen about to take examinations. Written in the plainest language and in the form of questions and answers. Postpaid. 75

KEY TO ENGINES AND ENGINE RUNNING—Joshua Rose. For use of those desiring to pass examination to take charge of an engine or boiler..... 2 50

LIBRARY OF STEAM ENGINEERING—John Fehrenbatch, M. E. 5 00

MANUAL OF MARINE ENGINEERING: Comprising the Design, Construction and Working of Marine Machinery. A. E. Seaton. New revised edition..... 6 00

MARINE BOILERS: A treatise on the Causes and Prevention of their Priming, with remarks on their general management —Reed. 2 00

MARINE BOILERS—Stromeyer..... 5 00

MARINE BOILERS—L. E. Bertin. 250 illustrations, designs and tables..... 7 50

MARINE ENGINES—R. Murray..... 1 80

MARINE ENGINES AND BOILERS—By G. Bauer..... 9 00

MARINE PROPELLERS—By Barnaby..... 4 50

MARINE STEAM ENGINE: Its Construction, Action and Management—Carl. Busley. A manual and book of reference for engineers, students, ship owners, officers of the navy and mercantile marine, and all interested in steam navigation. Thoroughly revised; third edition..... 15 00

MARINE STEAM ENGINES—Sennet & Oram..... $6 00

MECHANICS' AND ENGINEERS' POCKET BOOK, including Naval Architecture, Steam and the Steam Engine, Steam Vessels, etc. 64th edition, 1,050 pages. Chas. H. Haswell.. 4 00

MECHANICAL ENGINEERS' POCKET BOOK—H. H. Suplee. Hand book of tables, formulas and methods for engineers, students and draughtsmen..... 5 50

MODERN EXAMINATIONS OF STEAM ENGINEERS—W. H. Wakeman. 2 00

NAUTICAL ENCYCLOPEDIA, ILLUSTRATED—Howard Patterson. Complete from Standpoint of Marine Engineer and Naval Architect 3 00

POCKET BOOK OF MARINE ENGINEERING, RULES AND TABLES—Seaton and Rounthwaite. For marine engineers, naval architects, superintendents and others engaged in construction of marine machinery..... 3 00

PRACTICAL MARINE ENGINEERING, for marine engineers and students with aids for applicants for marine engineers' license—Prof. W. F. Durand..... 5 00

QUESTIONS AND ANSWERS FOR MARINE ENGINEERS—Theo. Lucas. Containing 807 questions, with fully explained illustrated answers. 2 00

QUESTIONS AND ANSWERS, sixth edition—Stephen Roper.. 2 00

REED'S ENGINEERS' HAND BOOK—New edition; illustrated by 345 diagrams and 36 large plates..... 5 00
Forty-five cents extra by mail or express.

REED'S KEY to Reed's Hand Book—Contains working of all questions given in examination papers..... 3 00

RESISTANCE AND PROPULSION OF SHIPS—W. F. Durand, principal of school of marine construction, Cornell University. 5 00

ROPER'S ENGINEERS' HANDY BOOK for Steam engineers and Electricians. Revised and enlarged..... 3 50

SCREW PROPELLER COMPUTER—Prof. Geo. R. McDermott. For quickly determining dimensions and proportions of screw propeller or any set of conditions..... 5 00

SCREW PROPELLERS AND MARINE PROPULSION—I. McKim Chase. 3 00

SLIDE VALVE—Julius Begtrup. Special reference to Modern Practice in the United States..... 2 00

SLIDE VALVE, SIMPLY EXPLAINED—W. J. Tenant..... 1 00

SLIDE VALVES—C. W. MacCord, Jr. A book for practical men on the principles and methods of design..... 2 00

SMALL ENGINES AND BOILERS—Egbert P. Watson. A manual of concise and specific directions for construction of small steam engines and boilers of modern types; illustrated 1 25

STEAM AND THE MARINE STEAM ENGINE—Jno. Yeo.... 2 50

STEAM BOILERS—Joshua Rose. Practical treatise, construction and examination. Seventy-three engravings..... 2 50

STEAM BOILER: Its Care and Management. Stephen Roper.. 2 00

STEAM ENGINE CATECHISM—By Robt. Grimshaw..... 2 00

STEAM ENGINE: Theory and Practice—Ripper..... 2 50

TRIPLE AND QUADRUPLE EXPANSION ENGINES AND BOILERS AND THEIR MANAGEMENT—A Ritchie Leask. Third edition, revised..... 2 00

USES OF ELECTRICITY ON SHIPBOARD—By J. W. Kellogg... 1 00

WATER TUBE BOILERS—Fifth revised and enlarged edition of HOW TO RUN ENGINES AND BOILERS—F. P. Watson. Practical instruction for young engineers and steam users..... 1 00

Sent to any address, carriage prepaid, at prices named. There is no book on Navigation, Marine Engineering, Ship Building, or the allied industries, that is not either published or for sale by the

MARINE REVIEW,

CLEVELAND, O.

Generated on 2024-08-27 20:08 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

Buyers' Directory of the Marine Trade.—*Continued.*

PILE DRIVING AND SUBMARINE WORK.

Buffalo Dredging Co.....Buffalo.
Dunbar & Sullivan Dredging Co.....Buffalo.
Fitz-Simons & Connell Co.....Chicago.
Great Lakes Dredge & Dock Co.....Chicago.
Hickler Bros.....Sault Ste. Marie, Mich.
Lake Superior Contracting & Dredging Co. ..... Duluth, Minn.
Parker Bros. Co., Ltd.....Detroit.
Smith Co., L. P. & J. A.....Cleveland.
Starke Dredge & Dock Co., C. H..Milwaukee.
Sullivan, M..... Detroit

PIPE, WROUGHT IRON.

Bourne-Fuller Co.....Cleveland, O.
Crane Co. .....Chicago.
Macbeth Iron Co.....Cleveland.
Reading Iron Co.....Reading. Pa.

PLANING MILL MACHINERY.

Atlantic Works, Inc.....Philadelphia.

PLATES—SHIP, STRUCTURAL, ETC.

Bourne-Fuller Co.....Cleveland, O.
Otis Steel Co.....Cleveland.

PRESSURE REGULATORS.

Kieley & Mueller .....New York.
Ross Valve Co.....Troy, N. Y.

PROPELLER WHEELS.

American Ship Building Co.....Cleveland.
Atlantic Works.....East Boston, Mass.
Cramp, Wm. & Sons.....Philadelphia.
Detroit Ship Building Co.....Detroit.
Fore River Shipbuilding Co.....Quincy, Mass.
Great Lakes Engineering Works.....Detroit.
Hyde Windlass Co.....Bath, Me.
Lockwood Mfg. Co. .....East Boston, Mass.
Marine Iron Works.....Chicago.
Milwaukee Dry Dock Co.....Milwaukee.
Newport News Ship Building Co..... .....Newport News, Va.
Roelker, H. B.....New York.
Sheriffs Mfg. Co.....Milwaukee.
Superior Ship Building Co....Superior, Wis.
Thropp & Sons Co., J. E.....Trenton, N. J.
Trout, H. G.....Buffalo.

PROJECTORS, ELECTRIC.

General Electric Co.....Schenectady, N. Y.

PUMPS FOR VARIOUS PURPOSES.

Blake, Geo. F., Mfg. Co.....New York.
Great Lakes Engineering Works.....Detroit.
Marine Iron Works.....Chicago.
Kingsford Foundry & Machine Works..... .....Oswego, N. Y.

PUNCHES AND SHEARS.

Sutton Co., C. E.....Toledo, O.

RANGES.

Stamford Foundry Co.....Stamford, Conn.

REFRIGERATING APPARATUS.

Great Lakes Engineering Works.....Detroit.
Roelker, H. B.....New York.

REGISTER FOR CLASSIFICATION OF VESSELS.

Great Lakes Register.....Cleveland.

RIVETS, STEEL FOR SHIPS AND BOILERS.

Bourne-Fuller Co.....Cleveland, O.

SAFETY VALVES.

Ashton Valve Co.....Boston.
Crane Co. .....Chicago.
Lunkenheimer Co. .....Cincinnati.

SAIL MAKERS.

Baker, Howard H. & Co.....Buffalo.
Upson-Walton Co.....Cleveland.

SALVAGE COMPANIES.

See Wrecking Companies.

SEARCH LIGHTS.

General Electric Co.....Schenectady, N. Y.

SHAFTING, HOLLOW.

Falls Hollow Staybolt Co..Cuyahoga Falls, O.

SHEARS.

See Punches, and Shears.

SHIP AND BOILER PLATES AND SHAPES.

Bourne-Fuller Co.....Cleveland, O.
Otis Steel Co.....Cleveland.

SHIP BUILDERS.

American Ship Building Co.....Cleveland.
Atlantic Works .....East Boston, Mass.
Buffalo Dry Dock Co.....Buffalo.
Cramp, Wm. & Sons.....Philadelphia.
Craig Ship Building Co.....Toledo, O.
Chicago Ship Building Co.....Chicago.
Detroit Ship Building Co.....Detroit.
Fore River Shipbuilding Co.....Quincy, Mass.
Great Lakes Engineering Works.....Detroit.
Lockwood Mfg. Co.....East Boston, Mass.
Maryland Steel Co.....Sparrows Point, Md.
Milwaukee Dry Dock Co.....Milwaukee.
Newport News Ship Building Co..... .....Newport News, Va.
New York Shipbuilding Co....Camden, N. J.
Roach's Ship Yard.....Chester, Pa.
Shipowner's Dry Dock Co.....Chicago.
Smith & Son, Abram.....Algonac, Mich.

SHIP CHANDLERS.

Baker, Howard H. & Co.....Buffalo.
Marine Mfg. & Supply Co.....New York.
Upson-Walton Co.....Cleveland.

SHIP DESIGNERS.

Kidd, Joseph .....Duluth.
Steel, Nacey & Hynd.....Cleveland.
Wood, W. J.....Chicago.

SHIP LANTERNS AND LAMPS.

Russell & Watson.....Buffalo.

SHIPMATE RANGES.

Stamford Foundry Co.....Stamford, Conn.

SHIP TIMBER.

Martin-Barriss Co.....Cleveland.
Rayner, J. .....Chicago.

SMOOTH-ON COMPOUND, FOR REPAIRS.

Smooth-On Mfg. Co.....Jersey City, N. J.

STAYBOLT IRON OR STEEL BARS, HOLLOW OR SOLID.

Falls Hollow Staybolt Co..Cuyahoga Falls, O.

STEAM VESSELS FOR SALE.

Gilchrist & Co., C. P.....Cleveland.
Holmes, Samuel .....New York.
Lester, S. S.....Quebec, Can.
McCarthy, T. R.....Montreal, Can.

STEAMSHIP LINES, PASS. AND FREIGHT.

American Line .....New York.
Anchor Line .....Buffalo.
Boston Steamship Co.....Boston.
Cleveland & Buffalo Transit Co.....Cleveland.
International Mercantile Marine Co..... Philadelphia.
Mallory Line ....New York.
Merchants' Montreal Line.....Montreal.
New York & Cuba Mail S. S. Co...New York.
Red Star Line.....New York.
United Fruit Co.....Boston

STEEL CASTINGS.

Otis Steel Co.....Cleveland.
Sutton Co., C. E.....Toledo, O.

STEERING APPARATUS.

American Ship Building Co.....Cleveland.
Chase Machine Co.....Cleveland.
Detroit Ship Building Co.....Detroit.
Hyde Windlass Co.....Bath, Me.
Marine Mfg. & Supply Co.....New York.
Moulton Steering Engine Co.....New York.
Sheriffs Mfg. Co.....Milwaukee.

SUBMARINE DIVING APPARATUS.

Morse & Son, A. J.....Boston.
Schrader's Son, Inc., A..... ....New York.

SURVEYORS, MARINE.

Gaskin, Edward .....Buffalo.
Hynd, Alexander .....Cleveland.
Parker Bros. Co., Ltd.....Detroit.
Nacey, James .....Cleveland.
Steel, Adam .....Cleveland.
Wood, W. J.....Chicago.

TESTS OF MATERIALS.

Hunt, Robert W. & Co.....Chicago.
Lunkenheimer Co.....Cincinnati, O.

TOOLS, METAL WORKING, FOR SHIP AND ENGINE WORKS.

Watson-Stillman Co.....New York.

TOOLS, WOOD WORKING.

Atlantic Works, Inc.....Philadelphia.

TOWING MACHINES.

American Ship Windlass Co..Providence, R. I.
Chase Machine Co.....Cleveland.

TOWING COMPANIES.

Donnelly Salvage & Wrecking Co..... .....Kingston, Ont.
Great Lakes Towing Co.....Cleveland.

TRAPS, STEAM.

Kieley & Mueller .....New York.
Sturtevant Co., B. F.....Hyde Park, Mass.

TRUCKS.

Boston & Lockport Block Co.....Boston.

TUBING, SEAMLESS.

Shelby Steel Tube Co.....Pittsburg, Pa.

VALVES, STEAM SPECIALTIES, ETC.

Ashton Valve Co.....Boston.
Crane Co. .....Chicago.
Jenkins Bros. .....New York.
Kieley & Mueller.....New York.
Lunkenheimer Co.....Cincinnati.
Ross Valve Co.....Troy, N. Y.

VALVES FOR WATER AND GAS.

Lunkenheimer Co.....Cincinnati.
Ross Valve Co.....Troy, N. Y.

VARNISHES.

Detroit Varnish Co.....Detroit.
Detroit White Lead Works.....Detroit.
Also Ship Chandlers.

VENTILATING APPARATUS FOR SHIPS.

Sturtevant, B. F. Co.....Hyde Park, Mass.
Sutton Co., C. E.....Toledo, O.

VESSEL AND FREIGHT AGENTS.

Boland, John J.....Buffalo.
Brown & Co.....Buffalo.
Elphicke, C. W. & Co.....Chicago.
Fleming & Co., E. J.....Chicago.
Gilchrist & Co., C. P.....Cleveland.
Hall, John B.....Buffalo.
Helm & Co., D. T.....Duluth.
Hawgood & Co., W. A.....Cleveland.
Holmes, Samuel .....New York.
Hutchinson & Co.....Cleveland.
Lester, S. S. .....Quebec, Can.
McCarthy, T. R.....Montreal.
Mitchell & Co.....Cleveland.
Parker Bros. Co., Ltd.....Detroit.
Prindiville & Co.....Chicago.
Richardson, W. C.....Cleveland.
Sullivan, D. & Co.....Chicago.

WATER GAUGES.

Bonner Co., Wm. T.....Boston.
Lunkenheimer Co.....Cincinnati, O.

WATERTIGHT BULKHEAD DOORS.

"Long Arm" System Co.....Cleveland.

WHISTLES, STEAM.

Ashton Valve Co.....Boston.
Lunkenheimer Co..... Cincinnati.

WILFORD'S WATERPROOF CLOTH.

Bunker, E. A. .....New York.

WIRE ROPE AND WIRE ROPE FITTINGS.

Baker, H. H. & Co.....Buffalo.
DeGrauw, Aymar & Co.....New York.
Upson-Walton Co.....Cleveland.

WINDLASSES.

American Ship Windlass Co..Providence, R. I.
American Ship Building Co.....Cleveland.
Hyde Windlass Co.....Bath, Me.
Marine Mfg. & Supply Co.....New York.

WINCHES.

American Ship Windlass Co..Providence, R. I.
Georgian Bay Engineering Works..... .....Midland, Ont.
Hyde Windlass Co.....Bath, Me.

WOOD WORKING MACHINERY.

Atlantic Works, Inc.....Philadelphia.

WOODS, FOREIGN.

Rayner, J. .....Chicago.

WRECKING AND SALVAGE COMPANIES.

Donnelly Salvage & Wrecking Co..... .....Kingston, Ont.
Great Lakes Towing Co.....Cleveland.
Parker Bros. Co., Ltd.....Detroit.

YACHT AND BOAT BUILDERS.

Drein, Thos. & Son.....Wilmington, Del.
Truscott Boat Mfg. Co.....St. Joseph, Mich.

YAWLS.

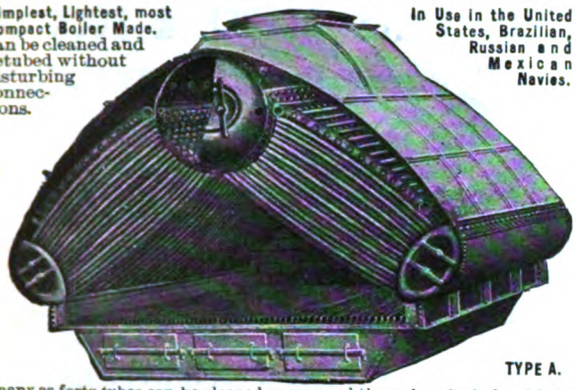
Drein, Thos. & Son.....Wilmington, Del.

Generated on 2024-08-27 20:11 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

THE MOSHER PATENT WATER TUBE BOILER

Simplest, Lightest, most Compact Boiler Made. can be cleaned and retubed without disturbing connections.

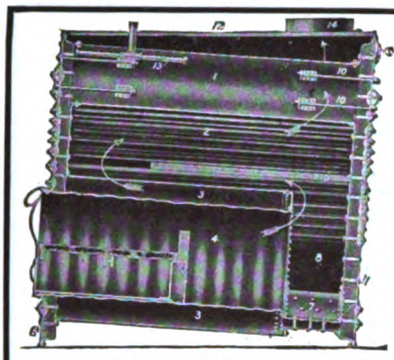
In Use in the United States, Brazilian, Russian and Mexican Navies.



TYPE A.

As many as forty tubes can be cleaned or renewed through a single hand-hole; has greater steam and water capacity than any other water tube boiler. Send for descriptive catalogue.

MOSHER WATER TUBE BOILER CO., NO. 1 BROADWAY, N. Y.



Detroit Scotch Water Tube Boiler

Internally Fired.

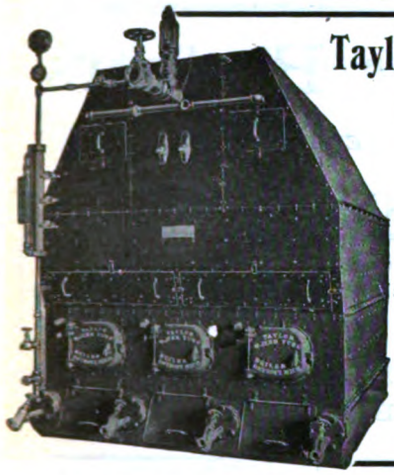
Scotch and Water Tube types combined, eliminating all objections.

Half the weight of ordinary Scotch boilers.

Standard corrugated furnaces.

Patent applied for. Investigate before buying any other.

EAST END BOILER WORKS
Detroit, Mich.

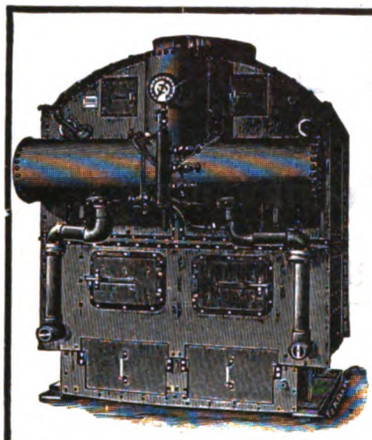


Taylor Water Tube Boiler Co.

Vertical Tubes, sectional, large steam space and liberating area.
Fire box, combustion chamber, and course for the furnace gases similar to the Scotch Marine.
Free circulation type.

Send for full description.

322 Franklin St.
DETROIT, MICH.



250 STEAM VESSELS

Now Equipped With

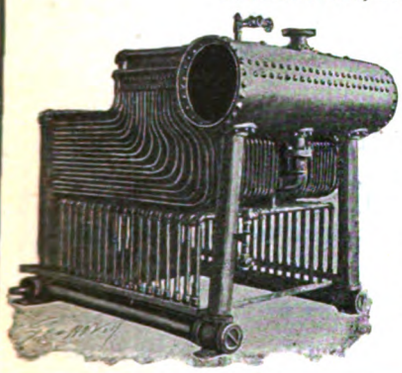
ALMY'S PATENT SECTIONAL Water Tube Boilers

Bear Evidence of Their

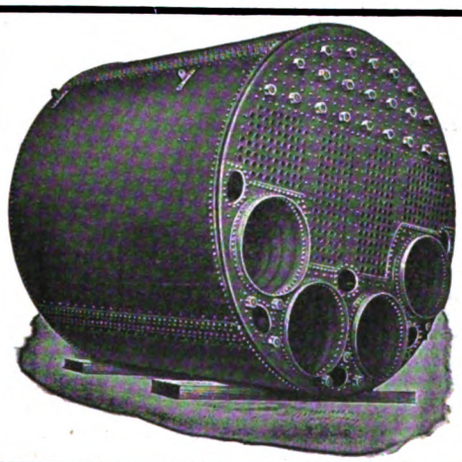
Excellent Qualities

Almy Water-Tube Boiler Co.
PROVIDENCE, R. I.

John E. Thropp & Sons Co.
TRENTON, N. J.



Builders of the Boyer Sectional Water Tube Boiler. Single, Compound and Triple Expansion Engines. Machinery complete for light draft Passenger Boats, Yachts, Tugs.



MARINE BOILERS

OF ALL TYPES

KINGSFORD FOUNDRY & MACHINE WORKS,
Oswego, N.Y.

LATEST PATENT ANCHOR

THE NATIONAL

APPROVED BY LLOYDS.

Manufactured by

L. M. BOWERS & CO.,
Binghamton, N. Y.

Catalogue on Application.

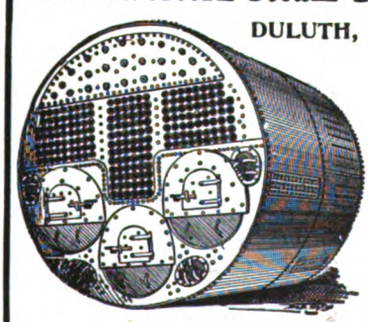
The National and International

ANCHORS.

Furnished to the Lake Trade by

The Upson-Walton Co.,
CLEVELAND, O.

Northwestern Steam Boiler & Mfg. Co.
DULUTH, MINN.



Manufacturers of

BOILERS, ENGINES AND MACHINERY

Special facilities for Marine Work. Repairs promptly attended to Night or Day.

We carry a complete line of Marine and Engineers' Supplies.

TELEPHONES: OFFICE AND WORKS, 615.
RESIDENCE CALLS: M. A. PYAN, *Pres. and Gen'l Mgr.*, 776-R; J. H. OPPERMAN, *Secretary*, 579-R; E. KRIZ, *Superintendent*, 557-M.

Generated on 2024-08-27 20:11 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

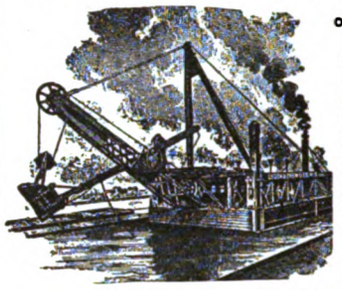
G. H. Breymann & Bro's

CONTRACTORS FOR
PUBLIC WORKS

Dredging, Dock Building, Etc.

5, 6 AND 7 MARINE BUILDING
TOLEDO, OHIO.

GREAT LAKES DREDGE & DOCK CO.



OWNS AND OPERATES THE PLANTS OF THE FORMER COMPANIES:

Lydon & Drews Co.
Hausler & Lutz Co.
Green's Dredging Co.
Chicago Star Con. & D. Co.
McMahon & Montgomery Co.
Chicago Dredging & Dock Co.
Griffith, McDermott & Watt Dredging Co.
Duluth Dredge & Dock Co.

Contractors for
RIVER AND HARBOR IMPROVEMENTS.
Main Office: 1319-1322 Chamber of Commerce - CHICAGO

Buffalo Dredging Co.

GENERAL CONTRACTORS
—ON—
SUBMARINE WORK

Office
D. S. Morgan Bldg.

BUFFALO, N. Y.

Hickler Brothers

SAULT STE. MARIE, MICH.

MARINE RAILWAY

Capacity, 1,000 tons. Draft, 7½ ft. forward, 13½ ft. aft. Length on keel blocks, 180 ft.; over all, 190 ft.

Machine Shop, Foundry and Steam Forge, Dredges, Drill Boats and Derrick Scows.

DUNBAR & SULLIVAN DREDGING CO.

BUFFALO, N. Y.

Will contract to remove ROCK or EARTH on the Great Lakes to 40 ft. depth.
To remove ROCK on Atlantic Coast to 40 ft. depth.
THAT'S ALL.

We SOMETIMES rent plant to responsible parties at OUR terms.

Dredges
Brian Boru, Steel.
Tipperary Boy, Steel.
Erin Go Braugh.

Drill Boats
Geo. A. Howells and another, both Steel.

Tugs
Shaughraun, Steel
Phil. Sheridan, Steel
Spalpeen, Steel
Paddy Miles, Steel
Shaun Rhue, Steel

Derrick
Faugh a Ballaugh

Scows

Monroe Doctrine,	600 yds., Steel.
Protective Policy,	500 yds., Steel.
Reciprocity,	600 yds., Steel.
Cuba Libre,	250 yds., Steel.
Gold Standard,	250 yds., Steel.
No. 5,	600
No. 6,	600
No. 7,	600
No. 8,	600
	4,600

McMyler derrick handling 10 tons at 75 ft. radius.

Small Scows

H. W. HUBBELL CO.

Submarine Work
of all kinds

SAGINAW - - MICH.

The Fitz-Simons & Connell Co.

CONTRACTORS
—FOR—
PUBLIC WORKS

DREDGING
DOCKS
PILE DRIVING
BREAKWATERS

TUNNELS
CANALS
BRIDGES
FOUNDATIONS

Offices: 1010-1014 Tacoma Building, Chicago.

Lake Superior Contracting & Dredging Company

GENERAL CONTRACTORS for PUBLIC and PRIVATE WORK
RIVER AND HARBOR IMPROVEMENTS

Two 20-inch Hydraulic Dredges specially equipped for handling Clay, Gravel and all kinds of dredgeable material. Filling and reclaiming lands a specialty.

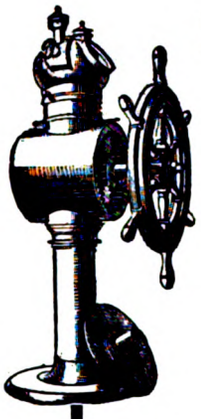
General Office, Wolvin Building DULUTH, MINN

Generated on 2024-08-27 20:26 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

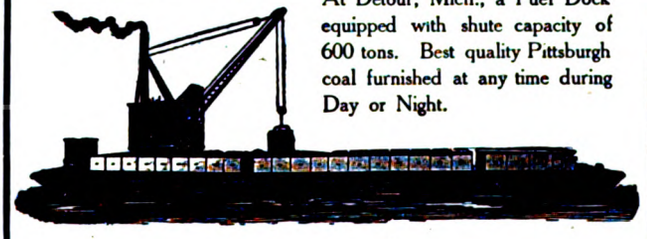
THE
L. P. & J. A. SMITH
COMPANY
CONTRACTORS FOR PUBLIC WORKS
Dredging, Harbor Work, Pile Driving, Breakwaters,
Dry Docks and Pier Building, Railroads, Canals,
Bridges, Submarine Foundations, Etc., Etc.
Offices: Williamson Bldg., CLEVELAND, O.

J. RAYNER
MAHOGANY LUMBER
VENEERS
FOREIGN WOODS
Foot E. Houston St. NEW YORK CITY
Fulton & Morgan Sts. CHICAGO

C. H. STARKE DREDGE & DOCK CO.,
Contractors for Public Works.
DREDGING, PILE DRIVING,
AND
SUBMARINE PIPE LAYING.
Canal Street, West of First Avenue,
Milwaukee, - - Wisconsin.


MARINE MFG. & SUPPLY CO.
157 and 158 South St., New York.
SHIP FITTINGS AND SUPPLIES
CAPSTANS, WINDLASSES, STEERING APPARATUS, ENGINE ROOM TELEGRAPHS, BRASS AIR PORTS, DEAD LIGHTS, PUMPS, ETC.
Catalogue A—Air Ports, Ventilators, etc.
Catalogue B—Windlasses, Pumps, etc.
Catalogue C—Steering Apparatus.
Others in course of preparation.

M. SULLIVAN,
DREDGING OF ALL KINDS.
THE REMOVING OF DEEP WATER EARTH AND ROCK A SPECIALTY. - - -
53 Woodward Ave. Terrace,
DETROIT, - - - MICH.

PICKANDS, MATHER & CO.
FUEL LIGHTERS at Buffalo, Erie, Ashtabula and Cleveland. At Detour, Mich., a Fuel Dock equipped with shute capacity of 600 tons. Best quality Pittsburgh coal furnished at any time during Day or Night.

Western Reserve Building, CLEVELAND, O.

Steamboat Fuel at Ashtabula.
Large Supplies of Best Quality.
Lighter Carrying Different Grades at all Times.

Fuel Scow with elevators and discharging spouts. Storage of 800 tons. Discharges 250 tons an hour into steamers while unloading cargo.
M. A. Hanna & Co., Miners and Shippers,
Main Office, Perry-Payne Bldg., Cleveland.

Toledo Office, 429 Spitzer Bldg.
Cleveland Office, 610 Perry-Payne Bldg.
Fueling Plants { Ironville Dock (Toledo Harbor) Huron Dock (Huron Harbor)
THE IRONVILLE DOCK & COAL COMPANY
BITUMINOUS COAL
For Steamboat Fuel and Cargo Shipment
CLEVELAND, OHIO.
610 Perry-Payne Building
Bell Phone Main 572

Generated on 2024-08-27 20:25 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

Merchants Montreal Line

ST. LAWRENCE RIVER ROUTE

PASSENGER STEAMERS

CITY OF MONTREAL **CUBA**

Commencing June 15th, weekly service (Thursdays) to the following points:

Toronto Cornwall
Kingston Prescott
Brockville Montreal

For rates and further information apply to

G. E. JAQUES & CO., Mgrs. Montreal, Quebec.

W. J. FARASEY, Agent, 107-115 River St., Tel. M 2049 Cleveland, O.

THE CLEVELAND & BUFFALO TRANSIT COMPANY

C&B LINE

UNPARALLELED NIGHT SERVICE
The Twin Flyers of The Lakes
"CITY OF BUFFALO" "CITY OF ERIE"

Both together being, without doubt, in all respects the finest and fastest that are run in the interest of the traveling public in the United States.

TIME CARD.—DAILY INCLUDING SUNDAY. CENTRAL STANDARD TIME.

Leave CLEVELAND 8 p. m. *Arrive BUFFALO 6:30 a. m.*
" BUFFALO 8 p. m. *" CLEVELAND 6:30 a. m.*

Connections made at Buffalo for all Eastern and Canadian points; at Cleveland for Toledo, Detroit and all points West and Southwest. **Tickets reading over L. S. & M. S. Ry. will be accepted on this Company's Steamers without extra charge.** Special Low Rates Cleveland to Buffalo and Niagara Falls every Saturday Night, also Buffalo to Cleveland. Ask Ticket Agents for tickets via C. & B. Line. Send four cents for illustrated pamphlet.

W. F. HERMAN, G. P. A., Cleveland, O.

"Graphite as a Lubricant"

A practical treatise on GRAPHITE LUBRICATION

52 pages. Illustrated

COPIES FREE

Mention Marine Review

JOSEPH DIXON CRUCIBLE CO.

JERSEY CITY, N. J.

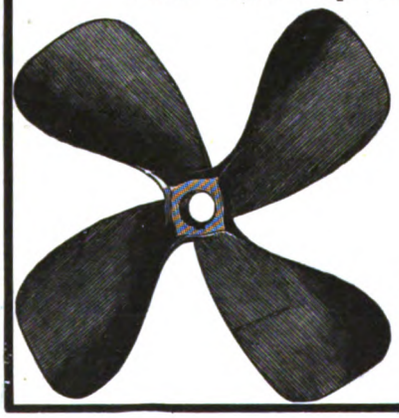
McMyler Mfg. Co.

CLEVELAND, O., U. S. A.

Designers and Builders of

Hoisting and Conveying Machinery,
Vessel Unloading Machinery,
Revolving Cranes,
Car Dumpers,
Clam Shell Buckets,
Etc.

Thirty Years' Experience building

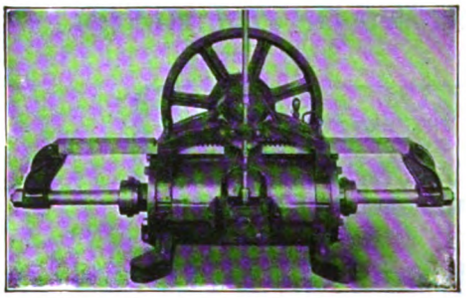


Engines and Propeller Wheels.

H. G. TROUT,
King Iron Works,
226 Ohio St.,
BUFFALO, N. Y.

A STEAM STEERER

DIRECT AND POSITIVE



QUICK ACTING
Especially adapted for Steam Yachts Ferryboats Lake, Ocean and Harbor Tug Boats.

Send for Catalogue and Particulars.

MOULTON STEERING ENGINE CO., 1691 BROADWAY NEW YORK CITY.

Sheriffs' Steam Steerer

FOR TUG BOAT USE

Easy to adjust, and can be handled by any one.

MANUFACTURED BY

Sheriffs Mfg. Co.

MILWAUKEE, WIS.

Established 1854

Aids to Navigation

are of vital importance to vessel interests.

SCHERZER ROLLING LIFT BRIDGES

aid navigation and meet with the approval of all vessel interests, because of the wide and unobstructed channel provided for navigation, enabling vessels to pass easily and rapidly through the draw.

The Scherzer Rolling Lift Bridge Co.

Main Offices: 1616 Monadnock Block, CHICAGO, U. S. A.

Generated on 2024-08-27 20:22 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

WARD LINE

THE NEW YORK & CUBA MAIL STEAMSHIP CO.

POPULAR ROUTE TO

CUBA, NASSAU, MEXICO

FINEST AND LARGEST STEAMSHIPS SAILING FROM NEW YORK TO OTHER THAN EUROPEAN PORTS. HOLDERS OF THE RECORD BETWEEN HAVANA AND NEW YORK -- 1,240 MILES IN 61 HOURS.

FOUR SAILINGS EACH WEEK BETWEEN

NEW YORK and HAVANA.

WEEKLY SERVICE TO GUANTANAMO, SANTIAGO, MANZANILLO AND CIENFUEGOS, CUBA, PROGRESO, VERA CRUZ AND TAMPICO, MEXICO.

SEMI-MONTHLY SAILINGS TO

Nassau, N. P. Bahamas.

LOW RATES OF FREIGHT AND PASSAGE.

SEND FOR OUR SCHEDULES, RATES AND DESCRIPTIVE MATTER.

James E. Ward & Co.

GENERAL AGENTS

90 Wall Street, NEW YORK.

AMERICAN LINE

PLYMOUTH
CHERBOURG
SOUTHAMPTON

Sailing From New York Every Saturday at 9:30 a. m.

St. Louis (11,629 tons)	**St. Paul** (11,629 tons)
New York (10,798 tons)	**Philadelphia** (10,786 tons)

Special Express Train from Plymouth and Southampton to London and between Cherbourg and Paris.

RED STAR LINE

NEW YORK
ANTWERP
LONDON
PARIS

CALLING AT DOVER FOR LONDON AND PARIS.
Sailing Every Saturday at 10:30 a. m.

Finland (12,760 tons)	**Kroonland** (12,760 tons)
Vaderland (12,017 tons)	**Zeeland** (11,905 tons)

One of the Shortest Routes to LONDON, PARIS, BELGIUM, HOLLAND, GERMANY, THE RHINE, SWITZERLAND and ITALY

9 Broadway, New York.

Broad and Sansom Sts., Philadelphia.
India Building, 84 State Street, Boston.
1306 F St., N. W., Washington, D. C.
219 St. Charles St., New Orleans
90-96 Dearborn St., Chicago.
Century Building St., Louis.
Guaranty Building, S., Minneapolis.
21 Post St., San Francisco.
375 Robert St., St. Paul.
41 King St., East Toronto.
17 St. Sacrament St., Montreal.

PIERS: 14 & 15 NORTH RIVER, FOOT OF FULTON ST., NEW YORK.

United Fruit Co's Steamship Lines

CARRYING FAST UNITED STATES AND FOREIGN MAILS.

First-Class Passenger Service to Jamaica

Weekly Sailings from
BOSTON, PHILADELPHIA and BALTIMORE

Fare One Way, $40.00 ═══ Round Trip, $75.00

For full information apply to
DIVISION PASSENGER AGENT
At either port.

"MALLORY LINE"

(New York & Texas Steamship Company)

Steamers Leave Piers New 15, 16 East River, NEW YORK

For GALVESTON, TEXAS

Every WEDNESDAY and SATURDAY, taking FREIGHT for all Points in TEXAS, MEXICO, NEW MEXICO, ARIZONA, UTAH, KANSAS, OKLAHOMA, MISSOURI, COLORADO and CALIFORNIA.
Saturday's Steamer touches at Key West, Fla.

For MOBILE, ALA.

A Steamer sails every FRIDAY, 3 p. m., taking FREIGHT for ALABAMA, MISSISSIPPI, MISSOURI and the SOUTHWEST.

For BRUNSWICK, GA.

A Steamer sails every FRIDAY, 3 p. m., taking FREIGHT for all Points in GEORGIA, FLORIDA, ALABAMA, LOUISIANA and the SOUTH and SOUTHWEST.

PASSENGER DEPARTMENT

Six days Ocean voyage to GALVESTON, Texas, thence by rail to All points South-west. Six days to MOBILE, Ala., through tickets to NEW ORLEANS. 65 hours to BRUNSWICK, Ga., thence rail to Interior South-eastern Points.
An especially attractive route through famous "SEA ISLANDS" to JACKSONVILLE, Florida.

Through Bill of Lading. Insurance at lowest rates.

C. H. MALLORY & CO., General Agents,

129 Front Street **Branch Office, 385 Broadway, New York.**

BOSTON STEAMSHIP CO.

S. S. "SHAWMUT" S. S. "TREMONT" S. S. "LYRA"

Japan, South China and Manila Steamship Line

Operated in connection with the

Northern Pacific and Great Northern Railway Companies.

Monthly Passenger and Freight Service from Tacoma and Seattle, Washington.

New Twin-screw American Steamships of 10,000 tons register. Exceptionally large staterooms, all outside.

OWING TO THE GREAT SIZE OF THE SHIPS, AND THE IMMENSE CARGOES CARRIED IT HAS NEVER BEEN NECESSARY TO USE RACKS ON THE DINING TABLES.

Rates at any office of

NORTHERN PACIFIC RAILWAY,
GREAT NORTHERN RAILWAY,
CHICAGO, BURLINGTON & QUINCY RAILWAY,
THOMAS COOK & SONS, Tourists Agents.

A. WINSOR, PRES. Boston, Mass.

F. WATERHOUSE, AGENT, Seattle, Wash.

Generated on 2024-08-27 20:16 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

VESSEL AND INSURANCE AGENTS.

JOHN J. BOLAND & CO.,
Vessel and Insurance Agents.
800-804 Prudential Bldg.
Both Phones. BUFFALO, N. Y.

C. W. Elphicke. J. J. Rardon.
C. W. ELPHICKE & CO.
Vessel and Insurance Agents.
No. 6 Sherman St. CHICAGO, ILL.
Telephone, Harrison 1194.

E. J. FLEMING & CO.
Vessel and Insurance Agents.
24-25 No. 6 Sherman St., CHICAGO.
Office: Tel., Harrison 4975. Residence: Tel. Drexel 1736.

C. P. GILCHRIST & CO.
Vessel and Insurance Agents.
Sale and Exchange of Vessels a Specialty. Lumber and Coal Chartering.
Full Telephone Service, Office and Residence. (Local and Long Distance.)
411 Perry-Payne Bldg., Cleveland, O.

JOHN B. HALL,
Vessel Agent.
17 Exchange Bldg., 202 Main St.,
Telephone, Seneca 892.
BUFFALO, N. Y.

W. A. Hawgood. Arthur H. Hawgood.
W. A. HAWGOOD & CO.
Vessel and Insurance Agents.
220-21 Perry-Payne Bldg., Cleveland, O.
Telephones: Office, Main 2395. Res. W. A. Hawgood, Doan 84-J. Res. A. H. Hawgood, Doan 841-J.

D. T. HELM & CO.
Vessel and Insurance Agents.
Telephones—Office 263.
—Res. 381-3.
DULUTH, - - - - MINN.

SAMUEL HOLMES,
Steamship Offices,
For Selling, Chartering and Building all Classes Steam Vessels.
Steam Vessel Circulars
Weekly Freight Circulars.
Morris Bldg., 66-8 Broad St., New York.

C. L. Hutchinson. W. H. McGean.
HUTCHINSON & CO.
Vessel and Insurance Agents.
Phones: Office, Main 2453. Res. C. L. Hutchinson, Lake 244. Res. W. H. McGean, Doan 274.
1408 Rockefeller Bldg. Cleveland.

S. S. LESTER,
Steamship Agent and Freight Broker.
Manager Steamer
ST. LAWRENCE,
83 Dalhousie St. QUEBEC, QUE.

VESSEL AND INSURANCE AGENTS.

T. R. McCARTHY,
Steamship and Freight Broker.
Chartering, Forwarding and General Commission Agent; and Broker for the Sale, Purchase and Construction of Steamers and Sailing Vessels.
Cable Address, "Macarthy, Montreal." (Watkins', Scott's Liebers and A. B. C. Codes Used.)
Shipping Agent to The Asbestos & Asbestic Co., Ltd., of Danville, Que. The Belgo Canadian Pulp & Paper Co., Ltd., of Shawinigan Falls, Que. Edward Lloyd, Ltd. Paper Manufacturer, of London (Eng.).
404 Board of Trade Bldg., MONTREAL, CAN.
Correspondence Invited and Agencies Solicited.

J. Mitchell. J. F. Wedow. A. Mitchell.
MITCHELL & CO.
Vessel and Insurance Agents.
508-10 Perry-Payne Bldg., Cleveland, O.
Office Tel. M. 767. Res. John Mitchell, Doan 341.
John F. Wedow, Doan 141-J.
Alfred Mitchell, Doan 218.

PARKER BROS. CO., LTD.,
Vessel, Marine Insurance and Wrecking Agents. Marine Surveyors.
Office Tel. Main 5314. Night: Main 290
Night: Grand 1723 J.
15 Atwater St. West, DETROIT, MICH.

Insurance.
PRINDIVILLE & COMPANY,
Average Adjusters.
Insurance Brokers.
12 Sherman Street, CHICAGO.
Representing: Johnson & Higgins, New York.

W. C. RICHARDSON,
Vessel Owner and Broker and Marine Insurance Agent.
420-421 Perry Payne Building,
CLEVELAND, O.
Office Tel. 338. Residence Tel. 2938.

D. Sullivan. F. J. Sullivan.
D. SULLIVAN & CO.
Vessel Agents.
Marine Insurance.
2-4 Sherman St., CHICAGO, ILL.
Office Tel., Harrison 2847. Res. Ashland 2483.

MARINE INSURANCE,
by
WILLIAM GOW.
Price, $1.50.
THE PENTON PUB. CO.,
Cleveland, O.

NAVAL ARCHITECTURE,
by
THOS. H. WATSON.
A manual on laying off iron and steel vessels. Valuable for naval architects as well as beginners in ship yards.
Price, $5.00.
Order from
THE PENTON PUB. CO.,
Cleveland, O.

PROCTORS IN ADMIRALTY.

WILLIAM F. CARROLL,
Lawyer and Proctor in Admiralty
Twenty years' general practice State and Federal Courts, Minnesota, New York and Illinois.
613-59 Dearborn St. Chicago, Ill.
Phone 4232 Central.

ALBERT J. GILCHRIST,
Proctor in Admiralty.
604 Perry-Payne Building,
CLEVELAND, O.

GOULDER, HOLDING & MASTEN,
Law Offices.
H. D. Goulder. S. H. Holding. F. S. Masten.
Perry-Payne Building,
CLEVELAND, O.

HOYT, DUSTIN & KELLEY,
Lawyers and Proctors in Admiralty.
Offices, 702 Western Reserve Bldg.,
CLEVELAND, O.

JENKINS, RUSSELL & EICHELBERGER,
Attorneys-at-Law and Proctors in Admiralty.
1520 Rockefeller Bldg. CLEVELAND.

C. E. KREMER,
Counselor at Law and Proctor in Admiralty.
Suite 821-822 New York Life Bldg.
CHICAGO, ILL.

RAY G. MACDONALD,
Attorney-at-Law and Proctor in Admiralty.
1018 Hartford Building,
Telephone, Central 2484 CHICAGO, ILL.

SHAW, WARREN, CADY & OAKES,
Attorneys-at-Law. and Proctors in Admiralty.
Union Trust Bldg., Detroit, Mich.

WHITE, JOHNSON, McCASLIN & CANNON,
Attorneys-at-Law and Proctors in Admiralty.
Williamson Bldg., CLEVELAND, O.

HAND BOOK
OF
ADMIRALTY LAW,
by
ROBT. M. HUGHES,
Price $3.75.
THE PENTON PUB. CO.,
Cleveland O.

Generated on 2024-08-27 20:40 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

PROFESSIONAL.

ROBERT W. HUNT & CO.,

Bureau of Inspection.
Tests and Consultation.

1121 The Rookery, CHICAGO.
Monong. Bank Bldg., PITTSBURG.
66 Broadway, NEW YORK.

Inspectors of shipbuilding material and machinery. Inspectors of all materials. Duty tests of engines and boilers. Physical and chemical laboratories.

PROFESSIONAL.

James Nacey. Alexander Hynd.

NACEY & HYND,

Marine Architects.
Mechanical Draughtsmen.
Consulting Engineers.

Specifications and designs for all descriptions of marine vessels, engines and boilers. Supervision of construction and repairs. Damage and other surveys carefully attended to.

Agents for Marine Specialties.

208-9 Western Reserve Building,
CLEVELAND, O.
Phone, Main 3339 J.

PROFESSIONAL.

W. J. WOOD,

Naval Architect, Consulting Engineer.

Prepares designs or working drawings and specifications for all classes of vessels and superintends construction and repairs. Surveys damaged property and estimates cost of repairs. Arbitrator and court expert.

FIRE BOATS A SPECIALTY.

Complete Plans furnished for Steel, Composite or Wooden Vessels.

921 Postal Telegraph Bldg.
Tel. Harrison 1020. CHICAGO.

JOSEPH KIDD,

Marine Architect and Surveyor.
Consulting Ship Builder and Engineer

Over thirty years' experience. Specifications, designs and estimates. Superintendence of construction and repairs. Damage and other surveys carefully attended to. Negotiations for the building, charter or sale of all kinds of vessels and machinery.

610 Board of Trade,
DULUTH, MINN.

FRED P. BELCHER,

Vessel and Insurance Agent,
430 Grain Exchange,
WINNIPEG, MAN.
P. O. Box 230.

JUST PUBLISHED
CLASS BOOK OF
NAVAL ARCHITECTURE
BY W. J. LOVETT
Illustrated Price $2.50
Order from Marine Review, Cleveland.

NAVAL ARCHITECTS' AND ENGINEERS' DATA BOOK,
By T. H. WATSON.
Price, $1.50.
THE PENTON PUB. CO.,
Cleveland, O.

BRITISH ADMIRALTY CHARTS

The latest Editions of Charts, Plans and Sailing Directions published by the British Admiralty. Can be obtained from Admiralty Agent by Appointment.

J. D. POTTER, 145 MINORIES LONDON. ENGLAND

OFFICIAL CATALOGUE OF CHARTS (380 pages) 1s.

An abridged Catalogue of Charts of Nautical Books (free on application.)

SAFETY FIRE BUCKET TANK

An appliance that requires no attention—Always ready for immediate use.

NOTHING TO GET OUT OF ORDER

A Chemical Solution that cannot

FOUL, FREEZE or EVAPORATE

Indorsed by all Insurance Companies.

Used by

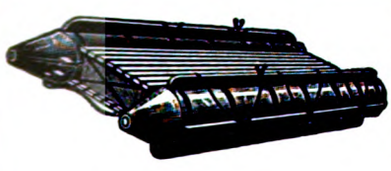
Penn. R. R. — International Nav. Co.
Erie R. R. — Hamburg Am. Line
C. R. R. of N. J. — North German Lloyd

SAFETY FIRE EXTINGUISHER CO.
29 W. 42d St., New York.

HOISTING ENGINES.

We build them in all sizes from new and improved designs, Every engine thoroughly tested before leaving our shop, and guaranteed to be satisfactory in every case. When in want of a hoist for marine work, dock work, mining, or any other purpose, kindly permit us to name you prices. We know we can please you.

MARINE IRON CO., - - - Bay City, Mich.



THOS. DREIN & SON

BUILDERS of Metallic Life Boats and Rafts, Government and Pleasure Boats, Block and Granulated Cork Life Preservers. Outfits for Lake Steamers a specialty. Tatnall St. below Railroad.

WILMINGTON, DEL.

John Donnelly, Sr., Pres. — John Donnelly, Jr., Vice-Pres.
H. B. Folger, Treas. — Thos. Donnelly, Secy.

THE
DONNELLY SALVAGE & WRECKING CO., LTD.
KINGSTON, ONT.

DIVERS, STEAM PUMPS, TUGS, ETC.
SUPPLIED ON SHORTEST NOTICE.

Quintard Iron Works Company

Office 742 E. 12th St., NEW YORK.

Manufacturers of

MARINE ENGINES, BOILERS, ETC.

Gas Works Apparatus. Sugar, Cement, Mining, Dredging and all kinds of machinery

N. F. PALMER, *President* STEVENSON TAYLOR, *Vice Pres.*
GEO. Q. PALMER, *Treas. and Gen. Mgr.*

THE "GAYNOR"

Improved Cork Block Life Preservers

Wired and unwired. The new standard preservers. Best on the market. Unrivalled in reliability, construction, strength, quality and durability of materials. Approved by the Board of Supervising Inspectors of the Steamboat Inspection Service, at its meeting in Washington, D. C. December, 1904.

Manufactured by THE NATIONAL CORK CO.
261 Lorimer St., Brooklyn, N. Y.
Who will send circulars and prices. Or write to
T. F GAYNOR, 18 Broadway, N. Y., for particulars.

Generated on 2024-08-27 20:10 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

GREAT LAKES REGISTER

FOR THE
CLASSIFICATION OF STEEL AND WOODEN VESSELS.

Estb. 1828 — Estb. 1898

COMBINED AND ISSUED IN CONNECTION WITH

BUREAU VERITAS

INTERNATIONAL REGISTER OF SHIPPING.

THE RATINGS OF GREAT LAKES REGISTER GO BEFORE AND ARE ACCEPTED BY THE LEADING UNDERWRITERS OF AMERICA AND EUROPE. VESSELS BUILT UNDER THE SUPERVISION OF ITS SURVEYORS WILL RECEIVE SPECIAL RATING, AND WILL ALSO BE PUBLISHED IN BUREAU VERITAS INTERNATIONAL REGISTER OF SHIPPING.

PLANS AND SPECIFICATIONS FURNISHED.

GREAT LAKES REGISTER SURVEYORS ARE ESTABLISHED AT ALL THE PRINCIPAL PORTS ON THE GREAT LAKES.

F. D. HERRIMAN, SURVEYOR GENERAL,
320-322 Perry-Payne Building, - - - CLEVELAND, O.

CHARLES E. PECK. WILLIAM A. PRIME.

CHAS. E. & W. F. PECK,

Insurance Brokers. Average Adjusters.

ESTABLISHED 1870.

NEW YORK, 58 William Street,
BOSTON, 153 Milk St.
BUFFALO, 906 The Fidelity Bldg.
CLEVELAND, 1107-8 Williamson Bldg.
CHICAGO, 1115-16 Royal Insurance Bldg.

REPRESENTED BY
C. T. BOWRING & CO., (Insurance) LTD.,
5 and 6 Billiter Ave., LONDON,
and at "LLOYD'S" LONDON.

HULLS and CARGOES.

We place insurances in the most advantageous markets, employing, in the interest of our clients and with equal facility, all Foreign and Home companies, at the best procurable rates and terms.

We Represent Only the Assured.

CRANE VALVES

ESTABLISHED 1855

FORE RIVER SHIPBUILDING CO.

Steel Ship and Marine Engine Builders.

CONTRACTORS FOR

U. S. Torpedo Boat Destroyers Lawrence and Macdonough.
U. S. Protected Cruiser Des Moines.
U. S. Battleships New Jersey and Rhode Island.
U. S. Steam Light-Vessel No. 72.

Office and Works, - - QUINCY, MASS., U. S. A.

GEO. STRATFORD OAKUM CO.

JERSEY CITY, NEW JERSEY.

Established 1860

Manufacturers of all grades of

Oakum

Spun Cotton

FOR SALE AT SHIP CHANDLERS EVERYWHERE.

W. & A. FLETCHER CO.

NORTH RIVER IRON WORKS.

MARINE ENGINES, BOILERS, Etc.

Hudson, 12th and 14th Sts., HOBOKEN, N. J.

Take Ferry from foot of West 22nd St., New York.

The Atlantic Works, *EAST BOSTON, Massachusetts.*

BUILDERS OF

Steamships, Steam Yachts, Tow Boats, Etc.

Marine Engines, Boilers and Tanks.
Heavy Machinery and Plate Iron Work.

THREE MARINE RAILWAYS.

The Martin-Barriss Co.

654 Seneca Street CLEVELAND, OHIO

IMPORTERS AND MANUFACTURERS OF

MAHOGANY

WHITE MAHOGANY

and all Native Cabinet Woods

High Grades of Kiln Dried Woods for Cabin Work and Inside Trim

WHITE OAK TIMBERS AND PLANK

Constantly on Hand and Sawed to Order on Short Notice

THE SHIPOWNERS DRY DOCK CO.

CHICAGO, ILL.

Building and Repairing of Steel and Wooden Ships with economy and dispatch.

Yard and Dry Docks: Halstead St. and North Branch.
Largest Dry Dock: 480 ft. on keel blocks.

Office, 381 No. Halstead St. Phone, North 1658.

Generated on 2024-08-27 20:09 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

PRACTICAL SHIPBUILDING:

A Treatise on the Structural Design and Building of Modern Steel Vessels. The Work of Construction, from the Making of the Raw Material to the Equipped Vessel, including subsequent Upkeep and Repairs.

By A. CAMPBELL HOLMS,

Member of the Institution of Naval Architects and of the Institution of Engineers and Shipbuilders in Scotland; Surveyor to Lloyd's Register of Shipping. 2 vols. (Vol. I., Text. Medium 8vo. Vol. II., Diagrams and Illustrations. Oblong 4to.)

The plan of the book is briefly as follows: First, attention is given to the fundamental matters which govern the structural design; the various stresses to which the hull is exposed, their straining tendency, and the different structural designs by which the necessary strength to resist them may be secured. Secondly, each important part of the hull is considered by itself, and each one from three points of view viz., its purpose in the structure and the particular stresses and straining effects to which it is liable; the various formations adopted in its design, with the rules governing them as regards scantlings and strength; and a description of the actual work of making it in a shipyard and fitting it to the ship. As a description of the actual work of the shipyard is reading of a special character, it is dealt with separately in the second part of the book, the sequence generally being thus better preserved.

$16.00, EXPRESSAGE EXTRA.

THE PENTON PUBLISHING COMPANY :: :: :: :: CLEVELAND.

ALPHABETICAL INDEX OF ADVERTISERS IN THE MARINE REVIEW.

The star (*) indicates that the advertisement appears alternate weeks. For addresses see advertisements on pages noted. The dagger (†) indicates that advertisement appears once a month.

Almy Water Tube Boiler Co..... 41
American Injector Co..... 3
American Line..... 45
American Ship Building Co..... 4
American Ship Windlass Co..... 2
Armstrong Cork Co..... 52
Ashton Valve Co..... 35
Atlantic Works..... 48
Atlantic Works, Inc..... †

Babcock & Wilcox Co..... 7
Baker, Howard H. & Co..... 52
Blake, Geo. F., Mfg. Co..... 50
Belcher, Fred P..... 47
Boland, J. J..... 46
Bonner & Co., Wm. T..... †
Boston & Lockport Block Co..... *
Boston Steamship Co..... 45
Bourne-Fuller Co..... 35
Bowers, L. M. & Co..... 41
Breymann & Bros., G. H..... 42
Brown Hoisting Machinery Co., Inc..... 2
Buffalo Dredging Co..... 42
Buffalo Dry Dock Co..... 5
Bunker, Edw. A..... 51

Carroll Wm. F..... 46
Chase Machine Co..... 11
Chicago Ship Building Co..... 4
Cleveland & Buffalo Trans. Co..... 44
Cleveland City Forge & Iron Co.. 51
Continental Iron Works..... 2
Cory, Chas. & Son..... 52
Cowing, John P..... 52
Craig Ship Building Co..... *
Cramp, Wm. & Sons, S. & E. B. Co..... 8
Crandall & Son, H. I..... *
Crane Co..... 48-50

Dearborn Drug & Chemical Wks. 9
Dearing Water Tube Boiler Co... 13
Delaunay, Belleville & Co..... 35
Delaware River Iron S. B. & E. Works..... 51
Detroit Ship Building Co..... 4
Dixon Crucible Co., Joseph..... 44
Donnelly Salvage & Wrecking Co. 47
Drein, Thos. & Son..... 47
Dunbar & Sullivan Dredging Co. 42

East End Boiler Works..... 41
Elphicke, C. W. & Co..... 46
Falls Hollow Staybolt Co..... 52
Fitz-Simons & Connell Co..... 42
Fix's Sons, S..... 50
Fleming & Co., E. J..... 46
Fletcher Co., W. & A..... 48
Fogg, M. W..... 50
Fore River Shipbuilding Co..... 48

Gaynor, T. F..... 47
General Electric Co..... 52
Gilchrist, Albert J..... 46
Gilchrist & Co., C. P..... 46
Goulder, Holding & Masten..... 46
Great Lakes Dredge & Dock Co... 42
Great Lakes Engineering Works 14
Great Lakes Register..... 48
Great Lakes Towing Co..... 7
Greacen-Derby Engineering Co.. †

Hall, John B..... 46
Hanna & Co., M. A..... 43
Hawgood & Co., W. A..... 46
Helm & Co., D. T..... 46
Hickler Bros..... 42
Holmes, Samuel..... 46
Hoyt, Dustin & Kelley..... 46
Hubbell Co., H. W..... 42
Hunt & Co., Robert W..... 47
Hutchinson & Co..... 46
Hyde Windlass Co..... 3

International Mercantile Marine Co..... 45
Ironville Coal and Dock Co..... 43

Jenkins Brothers..... 52
Jenkins, Russell & Eichelberg.... 46

Kahnweiler's Sons, David..... 51
Katzenstein & Co., L..... 51
Kidd, Joseph..... 47
Kieley & Mueller..... 2
Kingsford Foundry & Machine Works..... 41
Kremer, C. E..... 46

Lake Superior Contracting & Dredging Co..... 42
LeMois Scientifique et Industrial *
Lester, S. S..... 46
Link Belt Machinery Co..... †
Lockwood Mfg. Co..... 50
"Long Arm" System Co..... †
L. S. & M. S. Ry..... 51
Lunkenheimer Co..... 11

McCarthy, T. R..... 46
McCurdy, Geo. L..... 35
McMyler Mfg. Co..... 44
MacDonald, Ray G..... 46
Mallory Line..... 45
Marine Iron Co., Bay City, Mich. 47
Marine Iron Works..... 8
Marine Mfg. & Supply Co..... 43
Martin-Barriss Co..... 48
Maryland Steel Co..... 10
Mayo & Bailey..... *
Merchants' Montreal Line..... 44
Mietz, Aug..... †
Milwaukee Dry Dock Co..... 5
Mitchell & Co..... 46
Morse & Son, A. J..... 50
Mosher Water-Tube Boiler Co.. 41
Moulton Steering Engine Co..... 44

Nacey & Hynd..... 47
National Cork Co..... 47
Newport News Ship Building & Dry Dock Co..... 6
New York & Cuba Mail S. S. Co.. 45
New York Shipbuilding Co..... 12
Nicholson Ship Log Co..... 44
Northwestern Steam Boiler & Mfg Co..... 41

Otis Steel Co..... 3

Parker Bros. Co..... 46
Parsons, Ralph M..... †
Peck, Chas. E. & W. F..... 48
Penberthy Injector Co..... *
Pickands, Mather & Co..... 43
Pittsburg Coal Co..... 9
Potter, J. D..... 47
Power Specialty Co..... *
Prindiville & Co..... 46

Quintard Iron Works Co..... 47

Raynor, J..... 43
Red Star Line..... 45
Richardson, W. C..... 46
Ritchie & Sons, E. S..... *
Roberts Safety Water-Tube Boiler Co..... 11
Roelker, H. B..... 50
Ross Valve Co..... 50

Safety Car Heating & Lighting Co..... 5
Safety Fire Extinguisher Co..... 47
Scherzer Rolling Lift Bridge Co. 44
Schrader's Son, A..... 50
Shaw, Warren, Cady & Oakes... 46
Shelby Steel Tube Co..... 5
Sheriffs Mfg. Co..... 44
Shipping World..... 13
Shipowners' Dry Dock Co..... 48
Smith Co., L. P. & J. A..... 43
Smith Coal & Dock Co., Stanley B 9
Smith, Stanley B., & Co..... 9
Smooth-On Mfg. Co..... 51
Standard Oil Co..... *
Starke Dredge & Dock Co., C. H. 43
Stirling Co..... 11
Stratford Oakum Co., Geo..... 48
Sturtevant, B. F. Co..... 52
Sullivan, M..... 43
Sullivan & Co..... 46
Superior Ship Building Co..... 4
Sutton Co., C. E..... 50

Taylor Water-Tube Boiler Co.... 41
Thropp, J. E. & Sons Co..... 41
Trout, H. G..... 44
Truscott Boat Mfg Co..... 7

United Fruit Co..... 45
Upson-Walton Co..... 52

Walker, Thomas & Son..... 2
Ward Line..... 45
Watson-Stillman Co..... 51
White, Johnson, McCaslin & Cannon..... 46
Wood, W. J..... 47
Woodhouse Chain Works..... 7

Generated on 2024-08-27 20:12 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

BLUE BOOK
OF
AMERICAN
SHIPPING.

1905

Tenth Annual Edition.

Not in Any Other Book —The mailing lists and statistics published in the BLUE BOOK OF AMERICAN SHIPPING. The index will refer you to the page which contains just what you are looking for, if it has anything to do with Marine affairs.

Names and addresses of everyone you will want to reach.

Five hundred pages 10 x 7″. Price $5.00, prepaid.

The Penton Publishing Co.
Cleveland.

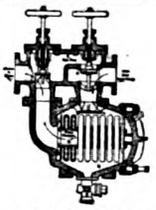
Water Filters, Regulators and Engines.

We make **Pressure Regulating Valves** for all purposes, steam or water.

Our **Feed-Water Filter** will keep oil out of your boiler.

We can interest you if you use a condenser.

Water Engines for Pumping Organs.



Keep Oil out of your Boiler with the
Feed-Water Filter
For Marine and Land Service. Two of these Filters are in use on the Oceanic.

THE ROSS VALVE CO. TROY N.Y.

The Lockwood Manufacturing Co.
EAST BOSTON, MASS.
ENGINEERS AND MACHINISTS.
Builders of Steamships, Tow Boats and Marine Engines.
Repairing of Hulls and Machinery.

The C. E. Sutton Company
Toledo, Ohio, U. S. A.
Manufacturers of
PUNCHES and SHEARS, FORGING MACHINES, STEEL and IRON GREY CASTINGS
Marine Castings a Specialty

THE ALLEN DENSE-AIR ICE MACHINE

Contains no chemicals, only air. Proven by many years' service in the tropics on United States men-of-war, steam yachts and passenger steamers. A hundred are in daily service on steamers.

H. B. ROELKER, 41 Maiden Lane, NEW YORK.

Consulting and Constructing Engineer. Designer and Manufacturer of Screw Propellers.

M. W. FOGG
Mattresses and Cushions

202 Front St. NEW YORK CITY.

All of the latest and largest LAKE STEAMSHIPS are completely equipped with
BLAKE DUPLEX AND SIMPLEX SPECIAL MARINE PUMPS
New Marine Catalog ready about July 1st.
Geo. F. Blake Mfg. Co.,
114 Liberty Street, New York City.

ORAM FIX ESTABLISHED 1860 J. W. FIX
S. FIX'S SONS
SUCCESSORS TO S. FIX & SON.
Steam Flue Welding Works
Our work stands government test. Our Welds are perfectly smooth. Write us for prices.
COR. LEONARD AND WINTER STS CLEVELAND, O.

CRANE FITTINGS
ESTABLISHED 1855

Established 1844
A. SCHRADER'S SON, Inc.
32 Rose Street, NEW YORK
Manufacturer of
Submarine Armor and Diving Apparatus
We carry a complete stock of Dresses, Hose and Repair Sundries.
Improved Bolt Helmet All orders filled day received Write for our prices

A. J. MORSE & SON, INC.
DIVING APPARATUS

221 HIGH ST., BOSTON, MASS.

Generated on 2024-08-27 20:09 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

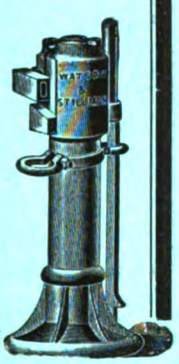
WATSON-STILLMAN HYDRAULIC JACKS

It is very important to the Jack user that the Jack he is operating be altogether trusty. We would not, and could not put any trust in a Jack with rams and cylinder made of seamless, or so-called seamless tubing.

Watson-Stillman Hydraulic Jacks

are built on different lines, cost more to build, but they are sold at the same price as a cheaply made Hydraulic Jack.

A Jack List, Edition N, sent on request.



Watson-Stillman Co.

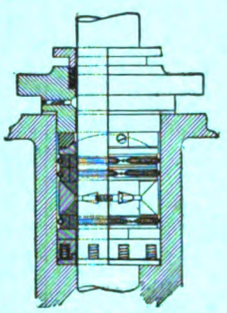
OFFICES:
46 Dey St., NEW YORK
453 The Rookery, CHICAGO

ROACH'S SHIP YARD.

Ship Building in all its Branches

Builders of
STEAMSHIP AND MARINE MACHINERY.

Delaware River Iron Ship Building & Engine Works,
Chester, Pa.



Katzenstein's Self-Acting Metal Packing

For PISTON RODS, VALVE STEMS, etc. of every description for Steam Engines, Pumps, etc., etc. Adopted and in use by the principal Iron Works and Steamship Companies in this and foreign countries.

FLEXIBLE TUBULAR METALLIC PACKING, for slip-joints on Steam Pipes, and for Hydraulic Pressure; also METAL GASKETS for all kinds of flanges and joints.

For full particulars and reference, address

L. KATZENSTEIN & CO.

GENERAL MACHINISTS, BRASS FINISHERS, ENGINEERS' SUPPLIES.
358 West street, New York.

Neversink Cork Jackets and Life Belt

Warranted 24 pounds. Buoyancy and full weight of Cork, as required by U. S. Inspectors.

Safest **Consolidated Cork Life Preservers. Ring Buoys and Fenders.** **Cheapest**

Approved and adopted by U. S. Board of Supervising Inspectors. Also adopted by the principal Ocean, Lake and River Steamer Lines as the only Reliable Life Preserver. Awarded four Medals by World's Columbian Exposition.

Metallic and Wooden Life Boats.

Metallic Life Rafts. **Marine Drags.**

Manufacturers of Woolsey's Patent Life Buoy—the lightest, cheapest and most compact life raft known.

DAVID KAHNWEILER'S SONS,
Fox Building, Cor. Franklin Sq. and Dover Street,
NEW YORK CITY.

LIGHT STRONG DURABLE

WILLIAM WILFORD'S MATCHLESS WATERPROOF CLOTH

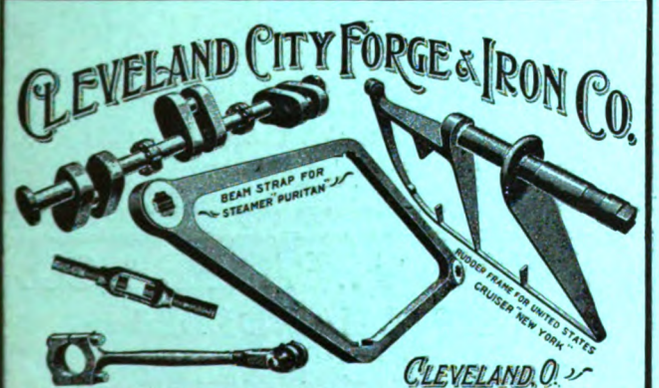
TRADE MARK

CLOTH THAT'S IN DEMAND

Wilford's Waterproof Cloth is made of twisted pure flax thread. It is pliable—will not crack, and much stronger than cotton. Impenetrable by salt or fresh water. Suitable for Tarpaulins, sail, hatch or boat covers, etc. A superior waterproof cloth. Test its merits.

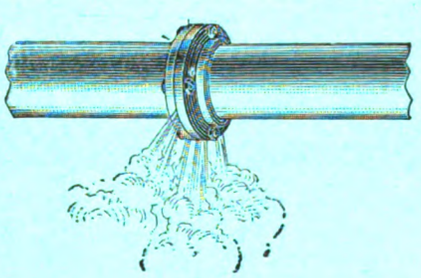
EDWARD A. BUNKER
Sole Agent for the United States and Canada
P. O. BOX 1579, NEW YORK

CLEVELAND CITY FORGE & IRON CO.



CLEVELAND, O.

IRON OR STEEL FORGINGS FINISHED COMPLETE, ROUGH MACHINED OR SMOOTH FORGED ONLY, OF ANY WEIGHT. COUPLING LINKS AND PINS. PRESSED WROUGHT IRON TURNBUCKLES. CAR IRON SPECIALTIES.



Smooth-On Elastic Cement will stop leaks

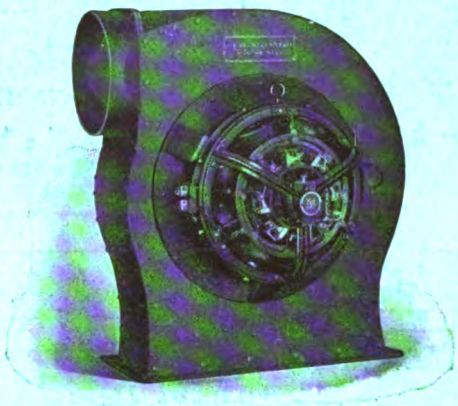
Write for new instruction book

SMOOTH-ON MFG. CO.
JERSEY CITY, N. J., U. S. A.

Generated on 2024-08-27 20:11 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY

Sturtevant Fans

are individually designed for the work they are to do. Each fits its chosen place, operates at maximum efficiency and is built for endurance under the most trying conditions.



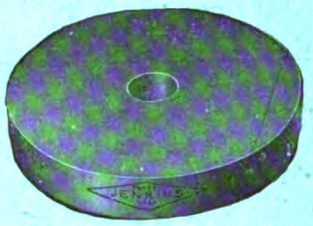
B. F. STURTEVANT CO.,
Boston, Mass.

General Office and Works, Hyde Park, Mass.
New York Philadelphia Chicago London

Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus; Fans, Blowers and Exhausters; Steam Engines, Electric Motors and Generating Sets; Fuel Economizers; Forges, Exhaust Heads, Steam Traps, Etc. 498

Jenkins Bros. Pump Valves

are made from various compounds, each of which is best adapted for a particular kind of work. Our many years of experience has enabled us to so perfect these compounds that we can confidently recommend our Pump Valves as the very best obtainable. When ordering, give all particulars of service, and we will supply pump valves which we will guarantee.



JENKINS BROS., New York, Boston, Philadelphia, Chicago, London. 2

General Electric Company

Marine electrical equipments of all kinds—from an incandescent lamp to a marine generating set.

Principal Office: SCHENECTADY, N. Y. Sales offices in all large cities

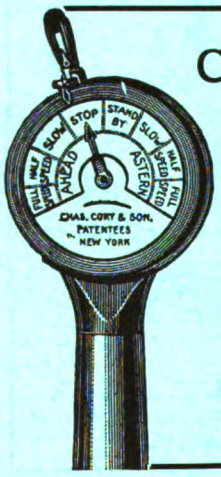
636

A FIRST-CLASS
Barometer

will often pay for itself a thousand fold.

If you wish to make an investment of that character, write us. We carry a full line with or without thermometers.

The UPSON-WALTON Co.
CLEVELAND, O.



Chas. Cory & Son

Manufacturers of

Mechanical and Electrical Telegraphs and Indicators. Engine Bells and Electric Call Bells.

278-279 Division St.
NEW YORK CITY.

ANY SIZE, OUTSIDE OR INSIDE DIAMETER.
AVERAGE LENGTH OF HOLLOW BARS EIGHT TO TEN FEET.

FALLS HOLLOW STAYBOLT Co

STAYBOLT BARS
BOTH HOLLOW AND SOLID.
MADE OF BEST QUALITY DOUBLE REFINED CHARCOAL IRON OR STEEL.
CUYAHOGA FALLS, O. U.S.A.

Makers of only the Highest Quality of Staybolt Material, in Hollow and Solid Bars, from the Best Double-Refined Charcoal Iron or Steel.

FALLS HOLLOW STAYBOLT IRON Is the only Reliable Flexible Staybolt in the World.

The Only Staybolt Iron which responds in service to the expansion and contraction of fire box; which relieves the material in molecular strains; which is self protective from burning; which does not make the side sheets crack; which earns its own cost in oxygen through it to the fire; always sure in giving warning of breakage.

The Staybolt which lasts longest, requires least repairs, gives longest life to the fire box, and the longest service in the engine on the rails.

In use by Leading Railways of the United States, Canada, Mexico, Japan and Norway. Also by Marine Engineers and the United States Government. And by the Manufacturers of Mining Drills and by others requiring absolutely reliable material.

LIFE PRESERVERS—BUOYS

ACME. SOLID CORK. Each Preserver stamped by U. S. Inspector guaranteeing proper buoyancy. Cork Filled Yacht Fenders. Cork Mooring Buoys. Material and Finish Guaranteed.

Orders filled promptly.

ARMSTRONG CORK COMPANY

Boston New York Philadelphia Pittsburg
Chicago St. Louis Baltimore

HOWARD H. BAKER & CO.
SHIP CHANDLERS
and SAIL MAKERS

18 to 26 Terrace, BUFFALO, N. Y.

Generated on 2024-08-27 20:10 GMT / https://hdl.handle.net/2027/nyp.33433109947634
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from NEW YORK PUBLIC LIBRARY